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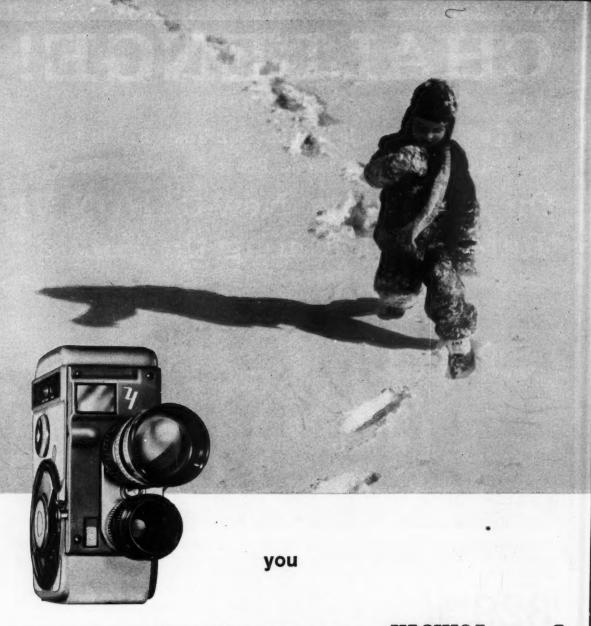
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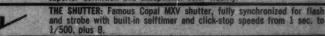
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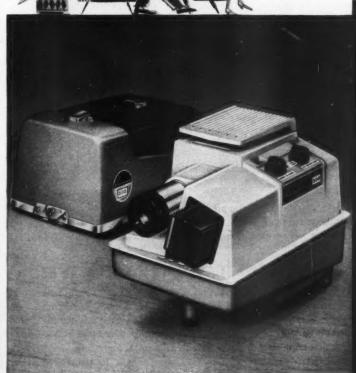
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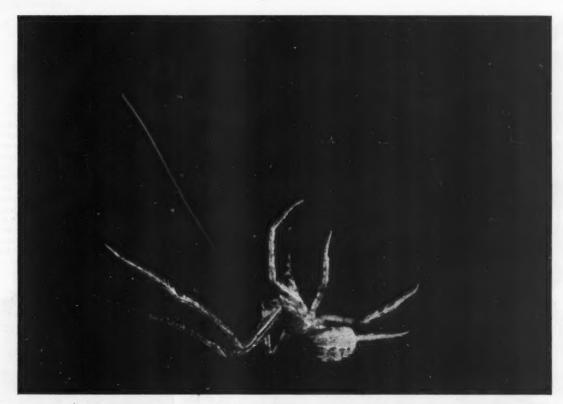
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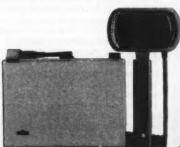




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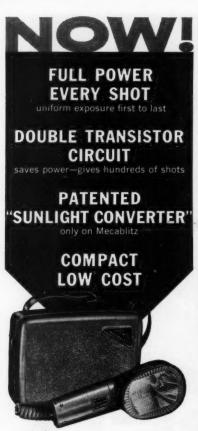
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Coffee Break WITH THE EDITORS

THIS MONTH'S COVER . . .

The message for February is 35mm and it's Sara Thom, the girl behind the Nikon, who delivers it. Man behind the view camera was New York photographer Leonard Balish, who used an 8 x 10 Deardorff with a 4 x 5 back and 12-in. Commercial Ektar lens. Exposure was with bounced electronic flash on Ektachrome Daylight film.

MODERN'S MOTORIZED EGG . . .

What carries two photographers, has four wheels and looks like an egg? Give up? Fine. Answer: An Isetta 300. Still no bells ringing? All right, now you have a fair picture of how MODERN's executive editor felt when he arrived in Munich, Germany and got a good look at the car he would be using for transportation to get to the Photokina reported in last month's MODERN.

The Isetta is slightly bigger than an Ostrich egg (more like a Roc's). It weighs in at about 550 pounds. It has one cylinder which when blazing along a straight path pushes out 18 horsepower and 55 miles per hour.

Into this strange animal, said executive editor entered for a trip through Italy prior to Photokina. You enter from the front, by the way. The door opens, the steering wheel swings out of the way and you're in. In all, 2000 roller-coaster Italian miles were to be covered, not too mention a few old Alps which happened to stand between Italy and Germany. With some slight apprehension, the editor bundled a wife,



Editor using stable moving tripod

two large pieces of luggage and tons of photographic equipment aboard and set sail (with the wind comfortably pushing from the rear). Editor and wife were amazed. Even without the

wind (sometimes it blew from ahead on the way up 14° grades in the Alps), the little cylinder chugged along camelfashion, getting 60 miles per gallon of very expensive Italian gas. The sun roof folded back, transforming the Isetta into something of a rolling tripod. (If you stand on the seat and your wife drives, you can shoot pictures out the top.) Germans, Italians, Austrians shouted and waved. "Exelsior" they said (in German, Italian, Austrian of course). And Exelsior the Isetta went. Not only was the Isetta fine as a base of photo operations, it proved a



Editor and Isetta visit Photokina

tidy foreground for Alpine landscapes when needed, and was always a good sign-language conversational gambit when making friends with strangers on the other side of the language barrier.

The tiny machine seemed quite large once inside and provided a completely false illusion of being capable of competing with various 100-MPH, 3000-lb. road monsters. After its Italian trip, the Isetta obediently took the Autobahn to Cologne where it ferried editors in and out of heavy traffic like a thread going through the eye of a needle. We waved it a reluctant goodbye 2500 miles and three weeks later. We're still not sure whether the Isetta should be listed under camera stands, props or equipment cases. Anyway we have just the spot in our darkroom to keep it

OFF LIMITS . . .

Saturday, 9 A.M. Nice sunny day. Decided to take in open house at Brookhaven National Laboratories. Off limits-type place otherwise.

10 A.M. Looked at camera. Guessed we better leave it home. Security, and

(Continued on page 12)

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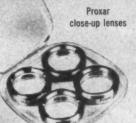
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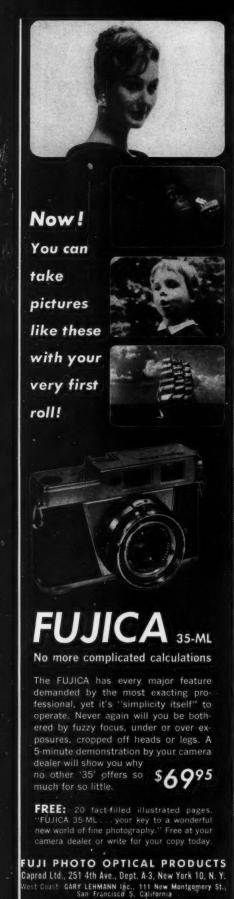






Stereo attachment





adian Agent: Precision Cameras of Canada, Ltd., 77 Vitre St. W., Montreal, P.Q.

COFFEE BREAK

(Continued from page 10)

all that. Might not like lenses poking around atomic reactors.

11 A.M. Arrived Brookhaven. Many people, many children. Youngsters looked dutifully interested. Efficient looking guards. Glad we left camera home. Others on tour had cameras. Waited for guard to confiscate same—along with exposed film.

11:15 A.M. Walked past large sign giving exposure information for various films. Lovely pattern shots at atomic pile. Made mental note to shoot it next year.

AVAILABLE BLOWTORCH . . .

It's a point of pride among 35mm available light enthusiasts to shoot under as many unusual conditions as possible—gas light, fire light, street lamps—just about anything that burns or sheds enough light to make an exposure meter needle quiver

But when a local public relations man invited us to take a crack at shooting by blowtorch—this was something ne... It seems that a New York client, whose nom de cuisine is Lucky Pierre, cooks by blowtorch. The idea was to shoot and eat what we shot—



Pierre . . . MYRON A. MATZK

novel and attractive from both aesthetic and gastronomic points of view. So we loaded up with Ansco Super Hypan, light meter, appetite—and a lot of faith—and took ourselves to Lucky Pierre's.

There was Pierre himself, amid a decor faintly reminiscent of something we once saw in Morocco—or Algiers—or someplace—cooking with a blowtorch.

The meter wasn't much help so we made an educated guess—based on nothing resembling logic—and started shooting. Seems that f/1.4 at 1/20 did the trick for the shot above. Knew it all the time, of course. Food, particularly the pilaf, was the most.

ANSEL ADAMS-PHOTOGRAPHER . .

It's rather strange, but with only a few exceptions, photography has ignored itself as a subject. The art film makers seem to stick to Artists with a capital A—painters and sculptors—and ignore photographers. So we were

happy to hear about a motion picture called "Ansel Adams—Photographer" —and even happier after we saw it.

Photographed and directed by David Myers, the film tells us a great deal about Adams—both from the point of view of Adams as a technician and as a man who is bent on discovering new



Adams . . .

meanings in his surroundings through his camera.

We see how painstakingly he makes the negative and then returns to the darkroom for even more exacting work. The keynotes seem to be craftsmanship and creativity as seen through the scenes devoted to showing his equipment, his shooting methods-and finally through an excellent portfolio of his pictures. The photographs are pleasingly reproduced on movie film something not always easy to do. The script was written by Nancy Newhall and narrated by Beaumont Newhall. Original music is by Don Worth, and Joseph P. Dieves did the supplementary photography. The film is distributed by International Film Bureau, 57 E. Jackson Blvd., Chicago 4, Ill.

CORRECTION: CAMERA CHARTS

Error of ommission, the chart makers own particular bugbear, must have been skulking under the typewriter when we compiled our list of "150 New Cameras" for the December issue of MODERN.

The current Linhof Super Technika IV 4 x 5 (1957) should have been included under "Press and View Cameras." Lenses 65 to 360mm which couple to rangefinder via interchangeable cams. two-color rangefinder image, improved movements, provision for acceptance of accessory focal-plane shutter are some of the features of the Super Technika IV. Price is \$679 with 135mm f/3.5 Xenotar; \$589.45 with 150mm f/4.5 Xenar.

The Nikon SP 35mm listing on page 115 of the December issue neglected to mention one of its most important design features—the universal viewfinder incorporated in the camera body. The Nikon finder includes viewing fields for 28, 35, 50, 85, 105 and 135mm.



When the action occurs...the NIKON SP is ready

If you could spend one day with a Nikon photographer - out in the field where really great pictures are made - you would come to appreciate fully the inherent greatness of the SP.

For, wherever the world is moving, the Nikon SP moves with it, ready to capture the events, both great and small, that give the world momentum, and to translate these events into photographs of great meaning and importance.

But, why the SP? Why are so many photographers turning to the Nikon SP in constantly increasing numbers? The reasons are many. The SP is the only '35' that offers a built-in Universal Viewfinder System, covering the six focal lengths most often used in 35mm photography: 28, 35, 50, 85, 105, and

135mm. There's no time wasted in fumbling with external accessory finders. When the action occurs, the SP is ready!

Where swiftness of operation spells the difference between success and

failure, the Nikon SP gives you an extra edge. Your thumb advances the film and sets the shutter; your middle finger adjusts the focus; your forefinger presses the body release. Just like that - advancefocus-shoot. This is the traditional speed and ease of operation that have made the Nikon the fastesthandling '35' in the field. When the action occurs, the SP is ready!

Backing up the other qualities of the SP are the world-famous Nikkor lenses. To match the versatility and handling-ease of the camera, the Nikkor lens offers a combination of high speed and high resolution that is unmatched anywhere. Great pictures happen under all lighting conditions, and the Nikkor lens is ready whenever the action occurs - as long as there is light enough to see by!

> The next time you see a photograph with that feeling of dramatic urgency, examine the credits carefully. Chances are, you'll find it was taken with a Nikon.

Nikon SP with Universal 6-lens Viewfinder System and 50mm Nikkor f2, \$369.50; with 50mm Nikkor f1.4, \$415. Nikon S3 - identical to SP except for 35, 50 and 105mm Trifocal Finder - with f2, \$309.50; and with f1.4, \$355.



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LETTERS TO THE **EDITOR**

Nothing New

Sirs:

Your October issue referred to the Japanese use of pigeons in press photography as a novelty. The New York Journal-American of your own city utilized this form of messenger for many years and still may. Several other U.S. newspapers have also used pigeons.

Red Bank, N. J. H. Randolph

• Right! The Journal-American advises that it did use pigeons before World War II to carry film from the scene of a fast-breaking story to the newspaper's office. Trainers tended roosts at the paper's main plant on South Street and bred the pigeons. Unlike the Japanese photojournalists, who tote their own pigeons, Journal photographers sent out on a story were accompanied by a trainer who tied the capsule of film to the bird's leg and launched it .- Ed.

Large

Feininger's column (The Large Camera) is the best thing that has appeared in MODERN PHOTOGRAPHY in years. Seven years ago my first camera was a Speed Graphic; then I bought a 35mm and some Rolleis. Two years ago I bought a 4 x 5 Graflex, and six months ago two new lenses for my beat-up Graphic. Although I still use my 35mm for human interest picture story assignments, I certainly believe that my 4 x 5's do just about everything else superbly, and I feel as if I have accomplished something. New York, N. Y.

Joyce R. Wilson, ASMP

Air Combat Exchange

Sirs:

I am in the process of assembling, for historical purposes, a group of photographs dealing with the air war during World War II.

I would like to contact others who are doing the same thing in order that we might exchange surplus material, or lend negatives. Further, I feel that there might be some veterans of that phase of the conflict who might have materials they might contribute or lend.

Any help will be sincerely and greatly appreciated. 623 E. Richard St.,

Paul Langworthy Miamisburg, O.

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NEW products

B & H Explorer Slide Projectors



A new slide pro-jector series con-sisting of four units, the Bell & Howell Explorers,

incorporates an entirely new idea for preventing slide popping. Called the "bubble" design by B & H, the device is incorporated into the Micro-Mount "bubble" design by B & H, the device is incorporated into the Micro-Mount slide holder. The system mechanically prevents slides from poppling out of focus even if held on the screen for long periods. All four projectors are self-contained units that do away with conventional carrying cases. Front and rear panels swing down for showing. All have illuminated rear control panels, built-in slide editors, accept forty 35mm. Bantam or super slides in

All have illuminated rear control panels, built-in slide editors, accept forty 35mm, Bantam or super slides in Micro-Mount non-spill slide tray, and have forward and reverse projection.

Model 742 has a 300-watt lamp, Trionar 4-in. 1/2.5 projection lens and push-button operation. Model 744 is similar to Model 742 but has provision for remote control. Model 754 is equipped with a 500-watt lamp and also provides for automatic projection by means of an internal timer. Model 754 is similar to 754 but has a Filmovara zoom lens with a range of focal lengths from 3½ to 4½ in. A 40-in. screen can be filled at any distance from 8½ to 11 th. by adjusting the focal length of the lens. The reverse feature on the 744, 754 and 754Y may be activated by the remote control attachment that comes with all machines except the 742. Prices of the Explorer slide projectors are: Model 742, \$79.95; Model 744, \$99.95; Model 754, \$149.95, and Model 754Y, \$179.95. Write:

BELL & HOWELL

7100 MC CORMICK RD., CHICAGO 45. ILL.

BELL & HOWELL 7100 MC CORMICK RD., CHICAGO 45, ILL.

New GE Projection Lamps

Three new General Electric lamps, each with two internally mounted mirrors, will mean lower cost and increased screen brightness for future slide and movie projectors, according to GE. All three are 500-watt four-pin base, gold-topped lamps. They reduce the need for external reflectors and condensers and have a light output equal to 750-watt lamps. One, the DHJ, is designed specifically for 8mm motion picture projectors. The CZA and DFR may be used in both slide and movie projectors. Both have immediate applicabe used in both slide and movie projectors. Both have immediate application in some existing machines—the DFR, for example, in the Kodak Cavalcade. The DFR may be operated horizontally or vertically.

The DHJ has a small flat mirror directly above the filament that bounces light to a larger curved mirror. The second mirror is set at an angle to the lamp's axis and redirects the collected

second mirror is set at an angle to the lamp's axis and redirects the collected light out of the lamp. The beam is focused near the film. The CZA and DFR have only one reflecting surface. The lamps are designed to prevent blackening. Prices are: DHJ, \$6.25; CZA, \$4.65; DFR, \$5.25. Write:

GENERAL ELECTRIC NELA PARK, CLEVELAND 12, OHIO

Polaroid 35mm Slide Changer

A new changer for the Polaroid pro-jector now makes it possible to show regular 35mm slides with the machine. The Polaroid projector was originally designed for showing slides made with the Polaroid Land camera. The regular

carrier is of 2¼ design for Type 46 Land Projection film. The 35mm changer is manually operated and made of stainless steel. Price of the Polaroid 35mm slide changer is \$4.95. Write:

POLAROID CORP. CAMBRIDGE, MASS.

2 x 2 Slide Viewer



The Sigma 35 illuminated slide viewer is said to give extreme magnification of the slide with no fall-off of image sharpness at the corners. The viewer is made of two-tone plastic, is powered by two "B" batteries and comes in an attractive case. Price less batteries is \$6.95. Write:

ELIABLE PHOTO PRODUCTS, INC. 103 FIFTH AVE., NEW YORK 3, N. Y.

Fast Loading for Mamiya-16



Loading time for the Mamiya Super-16's sub-miniature camera has been cut to less than 5 sec. with a new drop-

in magazine-type film load. The new magazine eliminates threading and other film handling. Film threading and other him handling. Film is contained in two plastic cassettes joined by a spacing band. Dropped into the camera, the film magazine automatically engages the film support. After exposure it is simply dropped out without rewinding. Film loads are available with Kodak Plus-X, Tri-X. Panatomic-X and Kodachrome. Write:

CAPROD LTD., 251 FOURTH AVE., NEW YORK, N. Y.

Brockway Lightweight Tripod



A new Brockway elevating tripod folds to only 10½ in., but opens to a full 52 in. when completely extended. Each leg consists of three sections. A foldaway hand crank operates the center post, while a single control panhead is controlled by a molded grip. Legs are rubber tipped. Price of the Brockway elevating tripod is \$14.95, complete with zippered leather carrying case. Write: scopus/Brockway, INC.

404 FOURTH AVE., NEW YORK 16, N. Y.

21/4 x 31/4 Single-Lens Reflex

2½ x 3¼ Single-Lens Reflex

The Rittreck 2½ x 3½ Single-Lens
Reflex, which uses either roll or sheet
film, is equipped with Luminant lens
and preset diaphragm, and takes interchangeable lenses from 90 to 400mm.
It has focal-plane shutter and speeds
from 1/20 to 1/400 sec., plus T and B,
and synchronization for bulbs and electronic flash. The camera can be focused
as close as 13 inches with the 105mm
lens without accessory lenses or extension tubes. A field lens is built into the
viewing screen and a focusing magnifier and sportsfinder are also provided. The roll film holder for the Rittreck comes with masks for 2½ x 2¾ treck comes with masks for 2½ x 2½, 2½ x 2½, or 2½ x 1% format on 120 (Continued on page 18)

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The 90mm Elmar f4 collapsi-The 90mm Elmar I4 collapsible lens can be carried on camera in Eveready case with lens hood inverted. Ideal for portrait photography, like all Leica lenses hard-coated on outer surface for scuff protection, soft-coated on inner surfaces for increased efficiency.

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The Bolex splicer can be used for both 8mm and 16mm film, is equipped with self-sharpening blades, costs only \$14.95.



The Bolex H8T and H16T, two new 3-lens turret cameras with Pre-view Zoom Finder, speeds from 8 to 64 fps, rewind for trick effects, continuous run lock, automatic film threading, time exposure, single frame control, eye-cup for through the lens focusing.

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only \$12.50.

The 5.5mm Switar F:1.8 and 5.5mm Pizar F:2 wide angle lenses can be used on all 8mm movie cameras with standard 'D' mount. They have an area more than 2X wider than the standard lens. 5.5mm Switar F:1.8 focusing mount only \$119.50.

5.5mm Pizar F:2 fixed locus only \$79.50.

MR. LINHOF recommends:



The Anatomical Grip will fit most 2½ x 3½ and 4 x 5 cameras. Assures firm, comfortable grip and adjusts to custom-fit user's hand. Handy thumb release for shutter. Give name and size of your camera when you order the Anatomical Grip for only \$34.95.



The DeLuxe Studio Tripod with geared center post and spirit level raises to 6'10". Built-in struts insure against camera tip-over. Rocksteady, excellent for cameras to 4 x 5, 8 and 16mm movie. Price of Tripod only 579:95. Precision Pan-and-Tilt Head with spirit level, pan-and-tilt scales, only \$18.95.

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The Technika Press 23 gives The Technika Press 23 gives large negatives with handling ease of a miniature camera. The fabulous Zeiss lenses are interchangeable and couple to the Multifocus Rangefinder-Viewfinder. Anatomical Grip and 100mm Zeiss Planar F:2.8 lens included at \$695.00. Trade your present camera.



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NEW PRODUCTS

(Continued from page 16)

film. There are 2½ x 3½ sheet film holders also available for the camera. Price of the Rittreck camera with Luminant lens is \$195. Write: BURKE & JAMES INC. 321 S. WABASH AVE., CHICAGO 4, ILL.

Bolsey-8 Movie Camera



The Bolsey-8 might well be called a subminiature 8mm movie

called a subminiature 8mm movie camera, since it measures on ly 3½ x 1½ in. and we ig hs but 12 ounces loaded. It de parts from standard practice in that it uses a magazine containing 25 ft. of single run 8mm film. Operating at 16 fps, the camera exposes from 8 to 10 ft. of film on a single winding, has a single frame, continuous run and lock positions on the shutter release. The Eigeet 10mm f/1.8 lens is in focusing mount, stops down to f/22, and focuses from 1ft. to infinity. Other features include: a variable shutter for exposure adjustment from 1/50 to 1/600 sec., a distance scale with settings for landscape, group or portrait, and an optical viewfinder. The camera takes special magazines made of plastic material. Kodachrome Type A and daylight emulsions are available. Price of the camera, with two magazines (Including processing) and a wrist chain, is \$99.50. Write: BOLSEY-DELMONICO 42-24 ORCHARD ST., L.I.C., N. Y.

HPI Movie Film Editing Kit

The HPI Movie Makers Workshop contains a pair of nylon geared 8/16mm Quick Splice rewinds and the HPI Pro-Splicer for film splicing with Mylar tape. The Pro-Splicer permits but splicing right at the frame line without cement or scraping. Torn film and sprocket holes may also be repaired. The Quick Splice rewinds are made of chrome steel and have a 4 to 1 winding ratio. Price of the HPI Movie Makers Workshop, including a supply of Quick Splice Mylar tapes, is \$11.95. Write: HUDSON PHOTOGRAPHIC INDUSTRIES, INC. HUDSON PHOTOGRAPHIC INDUSTRIES, INC. CROTON-ON-HUDSON, N. Y.

Walz Titler and Superimposer



The Walz Superimposer combines the means for making optical effects, such as fades and wipes, with a titler. The unit can be attached to the lens of any 8 or 16mm camera and consists of two compartments linked together by mirors. Raising or lowering the compartment hoods provides the desired effect. Titles may be superimposed over a still photograph or while shooting live footage. The unit is supplied with a Series IV adapter, set of wiping cards, title card holder, collapsible bracket, title (Continued on page 20)

18

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NEW PRODUCTS

(Continued from page 18)

cards and carrying case. Price of the Walz Superimposer is \$19.95. Additional adapter rings cost \$1 each. Write: U.S. PHOTO SUPPLY CO. 6478 SLIGO MILL RD., WASHINGTON 12, D. C.

Agfa Has Coupled Diaphragm



Outstanding feature of the Agfa Silette SL is an exposure meter coupled directly to the diaphragm. To diaphragm. To obtain the prop-

obtain the proper exposure, you center a needle in the bright frame of the finder by rotating the lens diaphragm ring. The exposure meter needle can also be seen in a window on top of the camera. The camera is equipped with a 4-element Agfa Color-Solinar 50mm f/2.8 lens. Other features include automatic parallax compensation throughout the en-Other features include automatic parallax compensation throughout the entire focusing range, Prontor SLK shutter with speeds from 1 to 1/300 sec., and rapid film transport that automatically cocks shutter and advances frame counter. Price of the Agfa Silette SL is \$99.95. Write:

AGFA, INC. 515 MADISON AVE., NEW YORK 22, N. Y.

Multi-Purpose Developer

FG7 developer concentrate, from Edwal Scientific Products Corp., may be used as a one-shot compensating or fine grain developer for all types of film. It can be used at dilutions from 1:3 to 1:15. At 1:3 dilution it is said to give a 1000 E.I. with Tri-X with # 10 to 12 minute development time. At 1:7 dilution, it is an excellent one-shot developer for fast films such as Royal-X Pan and produces very little forging action. Very fine grain results ROYAL-X Pan and produces very little fogging action. Very fine grain results may be obtained with medium and high speed films at 1:15 dilution by using sodium sulfite in the developer. Price of FG7: 16-oz. bottle, 99 cents; quart, \$1.75; gallon, \$6.75. Write: EDWAL SCIENTIFIC PRODUCTS CORP. 420 w. 111 st., CHICAGO 28, ILL.

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The PLR adjusta-The PLR adjustable boom clamps are designed to convert light stands into boom lights and use "frictional-springtension" for free movement into any position. Models are available for light stands ¾ to 1 5/16 inches in diameter, and booms of ½ to ¾-in. diameter. Prices range from \$4.95 PHOTO LECTRONIC RESEARCH

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Silica Gel Air Dryer

The Davidson Silica Gel Air Dryer may be used to absorb moisture in an enclosed area where there's danger of rust, mildew, corrosion or mold which cause damage to films, silides, and camera equipment. The silica gel keeps the relative humidity down below 30 percent and may be used indefinitely if dried out occasionally in an ordinary oven. Container measures 4 x 2 1/16 x 1 7/32 in. and contains about 40 grams of silica gel. Price is \$1.25. Write: H. H. WILSON

216 WESTSHIRE RD., RALTIMORE 29, MD.

8mm Kodachrome Duplicates

Eastman Kodak now makes 8mm Kodachrome duplicates from original footage. A duplicate up to and includ-(Continued on page 22)

DRI



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model features a tri-lens turret that automatically sets your viewfinder as you switch to telephoto or wide angle. Its value—greatest of all "automatics," starting at \$169.95 with all three f1.9 lenses! Or with single lens, EUMIG C 3 at \$129.95. See it to believe it —it's the camera designed with an "eye" on the future! At Franchised Unimark Stores coast-to-coast, or write for complete details to:



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NEW PRODUCTS

(Continued from page 20)

ing 50 feet will be returned on a 50-ft. Tenite projection reel, 50 to 200 feet on a 200-ft. Kodascope metal reel with can, 200 to 400 feet on a 400-ft. Kodascope metal reel with can. Cost for 8mm duplicates is 13½ cents per foot, with a minimum charge of \$6.75. Write:

BASTMAN KODAK
ROCHESTER. N. Y.

Transparencies from Kodacolor

Eastman Kodak is now making Kodacolor transparencies from Kodacolor 135 and 828 negatives. Transparencies may be ordered through dealers offering Kodak processing and printing of Kodacolor film. Transparencies will be returned in 2 x 2 cardboard mounts. According to Kodak, each transparency will be individually printed for best results, but only from full 24 x 36mm negatives on 35mm Kodacolor or 28 x 40mm negatives on 828 film. Price will be 20 cents per transparency. Write: EASTMAN KODAK CO.

Sylvania Super Tru-Flector



Sylvania has another mighty miniature projection lamp — this one called the Super Tru-Flector. The new lamp, designed for 8mm projectors, is said to have a power output equal to lamps as large as 750 w atts. The Super Tru-Flector has only a 150-watt rating, but the tremendous increase in light output results from the combination of built-in reflector and a small, low-voltage auxiliary transformer which produces a high rate

duces a high rate of filament current. The design, like its earlier prototype, is said to do away with the need for condensers and external reflectors in 8mm projectors.

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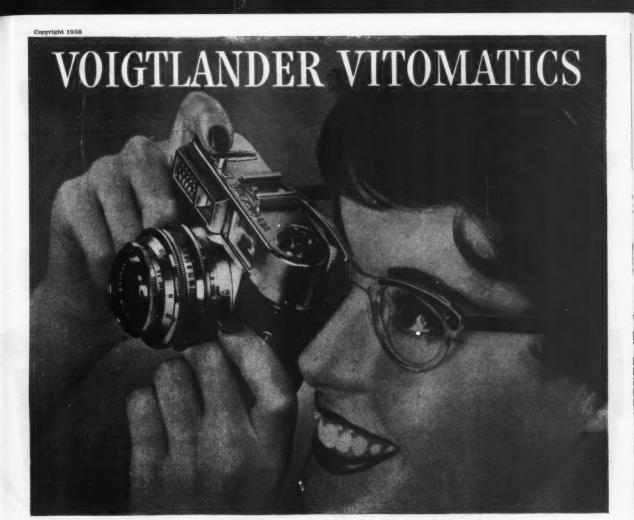
The Safe-Lock Model 1TV tripod is a lightweight unit designed for industrial, movie and TV use. The tripod weighs 9½ lbs., is 5 ft. high when fully extended, but closes to just 41 in. It has a "Guide-on" adapter shoe which automatically guides camera onto tripod, a pan head with three directional movement, twin shank legs, and double locking knobs on leg extensions. The tripod is made from machined aluminum with permanent anodized weather resistant colors. Additional features are; large skid-proof rubber feet on legs which reverse with metal spikes on the other end, individual vertical tilt control, and disc-knob for horizontal drag control and lock. Price of the tripod is \$89. Write:

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IPHOTOFILASHI CONTIEST

Here's all you have to do: Go to your local Ford dealer's showroom and actually take a picture of yourself (or have someone snap it for you) or anyone in your family in a '59 Ford. Have the Ford dealer or one of his salesmen sign your entry blank. Then send us a print of the picture along with our official entry blank and the triangular trademark from any package of Sylvania Flashbulbs. The pictures with the best story-telling value and originality will take the prizes. So, start your imagination working today on your prize-winning shot.

Name	
ddress_	
	*
	Name of Ford dealership where you took photo :
	Ford dealer's or salesman's signature:

Don't forget to put in your print and this triangular tradewark from a package of Sylvania Flashbulbs. Mail entry to: Sylvania Photoflash Contest, Post Office Box 1686, New York 46, N. Y.

OFFICIAL CONTEST RULES

 This contest is open to anyone 18 years of age or over residing in the United States or Hawaii. Employees of Sylvania Electric Products Inc., Ford Motor Company, Ford Dealers, Sylvania Photo Lamp Dealers, their advertising agencies, subsidiary companies, and the immediate members of their families are not eligible to enter.⁹

*1a. Photographers who derive their maximum yearly income from commercial photography are also not eligible to enter this contest.

- 2. Pictures must be in black and white, no smaller than $2\frac{1}{2}$ " x $2\frac{1}{2}$ " and no larger than 5" x 7". Neither framed pictures nor color slides are acceptable. Prints that have been previously published commercially will not be acceptable. All pictures submitted must be taken with flashbulbs.
- Photographs should be sent to: Sylvania Photofiash Contest, Post Office Box 1686, New York 46, New York.

All entries must be photographed no later than March 15, 1959, postmarked on or before March 31, 1959, and received by April 10, 1959.

- 4. Additional entry blanks will be available at your Sylvania Photo Lamp Dealer. The entry blank accompanying the picture must be signed by a Ford Dealer or one of his salesmen.
- 5. Entries will be judged by The Bruce Richards Corporation on the basis of:
 - a. Story telling value of the picture. b. Originality of photograph in expressing (or illustrating) the theme, "Picture Yourself In A 1959 Ford."

Decision of the judges will be final. Duplicate prizes will be awarded in case of ties.

- 6. You may enter as often as you wish, but each picture must be accompanied by (1) the trademark from the outer wrapper of a sleeve of Sylvania Blue Dot Flashbulbs, and (2) official entry blank, or typewritten or printed copy thereof, attached to the back of the photograph.
- 7. Pictures should illustrate the theme, "Picture Yourself In A 1939 Ford." All entries must be the original work of the contestant except that he may receive aid from his Ford Dealer. Entries will be disqualified for any outside professional or compensated help.
- 8. All entries become the property of Sylvania and Ford end will not be returned to the contestant. The contestant consents to the use of his entry of reproduction, in whole or in part, thereof and of his name by Sylvania, Ford, and their advertising agencies for advertising and publicity purposes and agrees to sign and to cause others shown in the picture to sign a consent to such use in such form as Sylvania and/ or Ford may reasonably require.
- 9. In selecting hotels and carriers of the highest reputation, Sylvania has made every reasonable effort to provide for the safety and comfort of the first-prize winner and his family. Each contestant agrees that if he is a first-prize winner, e will release Sylvania and their agents and employees, from liability for personal injury or property damage suffered during the prize vacation.
- 10. The contest is subject to all federal, state and local regulations. Winners will be notified by mail within approximately one month after final closing date.

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What's Ahead?

by LLOYD E. VARDEN

A new method for automatic "dodging" in contact printing.



Today amateur photographers admittedly have little interest in contact printing. All the same I believe that amateurs are keen to learn about new techniques when clever and novel ideas are involved. For this reason I could

not resist discussing here a new method recently described for automatic "dodging" in contact printing.

Existing methods

Dodging in contact printing can be done in several ways. These can be classified as manual, semi-automatic and automatic. With large negative sizes, when exposing the print paper in a typical contact printing frame, dodging is carried out in the same way as in enlarging. But this is not a very satisfactory method because the image of the negative is not clearly visible. And without a visible image (as provided on the easel in enlarging) to act as a guide, dodging becomes even more hit-and-miss than it is in any other manual method.

Using a regular contact printer, small pieces of tissue paper, sand, etc., can be appropriately distributed on the ground glass beneath the negative to balance its density characteristics to fit a particular paper's exposure scale. Or, as in some professional contact printers, an array of small lamps, each of which can be switched on or off independently, can be used to accomplish the same thing.

Representative of the semi-automatic contrast control procedures is the use of an unsharp positive mask. The mask is produced by printing through the negative onto a sheet of film which is separated from the negative by a diffusion sheet. The developed mask image is then positioned between the light source of the contact printer and the negative for print exposure.

Automatic dodging came into being with the introduction of electronic scanning systems, particularly the system incorporated in the LogEtronic printer several years ago. Here a spot of light moving across the face of a cathode ray tube acts as the print exposure means, and the intensity of the spot is varied according to the

density characteristics of the negative by an electronic feedback technique. Although completely automatic and versatile in applications, such equipment is far too expensive for the amateur's pocketbook.

The new method

Another approach to automatic dodging is described by Alfred J. Watson, vice president of Watson Electronics and Engineering Co., Inc., Arlington, Va., in the September, 1958 number of Photogrammetric Engineering. In his new method Mr. Watson takes advantage of the fact that the emission of light from a fluorescent substance can be quenched by infrared radiation. Since the silver in a negative image is an effective absorber of infrared radiation it can modulate the amount of infrared reaching a fluorescent surface. Thus, if a fluorescent surface is used as the printing light source and the amount of light it emits at any point across its area is varied according to the densities of a negative, dodging is accomplished automatically.

The principle of Mr. Watson's system is easy enough to state, but applying it in practice is a bit more difficult. Nevertheless, this has been accomplished in the new Kel-O-Wat contact printer.

How the Kel-O-Wat functions

1. The printing paper is placed on top of a negative in the usual way, with the exposing source beneath the negative.

The exposing source is a uniform coating of a fluorescent substance on a glass plate, over which is placed an ultraviolet absorbing filter and a clear glass plate.

3. Beneath the fluorescent coating is a source of ultraviolet radiation in a sealed system. The ultraviolet excites the fluorescent substance, but only visible light can reach the printing paper because of the ultraviolet absorbing filter.

4. Above the printing paper is a source of filtered infrared radiation. The infrared passes through the paper base and emulsion, but since the emulsion is not infrared sensitive, it does not become fogged.

5. The infrared is selectively absorbed by the negative according to its silver density at any point. Therefore, before the infrared radiation reaches the fluorescent surface its intensity is modulated imagewise.

6. According to the varying amounts of infrared impinging upon the fluores-

(Continued on page 110)

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New Photo Books

LEGAL ASPECTS OF PHOTOGRAPHY, by Robert Veit Sherwin. 128 pages, 10 photographs. Greenberg. \$1.95

PHOTOGRAPHY AND THE LAW, by George Chernoff and Hershel B. Sarbin. 128 pages, 8 photographs. Amphoto, New York. \$1.95

Any photographer who has passed the photo album stage and decided that his pictures are worthy of a wider audience faces the immediate problem of legal rights. Heretofore there have been no concise texts to which he could refer. Now two have been introduced simultaneously, both authored by attorneys actively engaged in the practice of law as it applies to photography.

Neither book purports to supply all the answers on this rather ticklish subject. Laws are so complex—and vary to such a degree from one locale to another—that in such brief form only generalized rules can be offered as legal guidance for the professional and semi-professional photographer.

Both books cover roughly the same territory-libel, the right of privacy, copyright, ownership, damage to film, contracts, what constitutes obscenity, etc. However, there the similarity ends. Mr. Sherwin's Legal Aspects of Photography is written in lively style with eye-catching sub-titles, but he appears to scratch rather haphazardly at the surface of his subject without providing any documented answers. Sherwin's attitude toward the photographer's position with regard to law places him with his back against the wall, fighting off unpredictable "enemies" with unstinting zeal.

Chernoff and Sarbin's Photography and the Law, on the other hand, digs in and cites cases to demonstrate just what a photographer may and may not do. Concisely written and well organized, it is presented in a manner to provide ready reference to those legal areas which most concern the man with a camera. Chernoff and Sarbin take a positive approach which gives the photographer a sense of security in the practice of his profession.

In the final analysis, a photographer who finds himself involved with the law must turn to his own attorney for a solution. But armed with *Photography and the Law*, he can spot a dangerous situation before legal action becomes necessary.—M. T.

These and other books are available through AMPHOTO; see pages 32 & 33.

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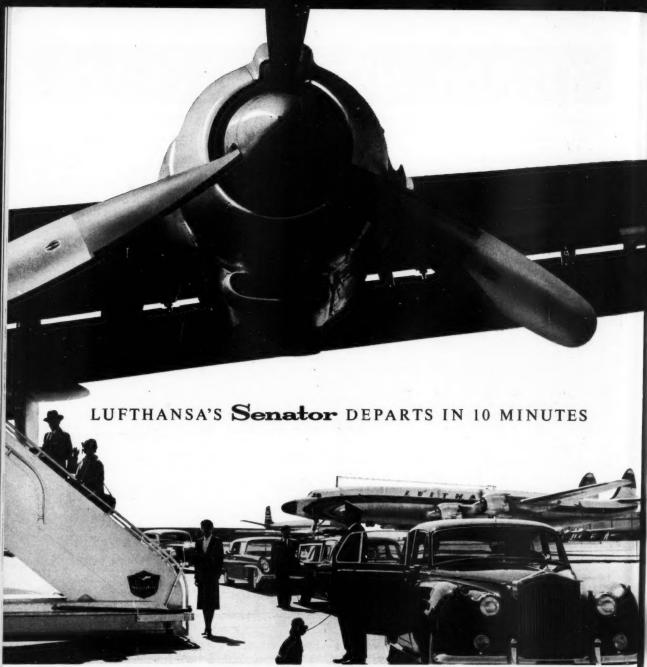
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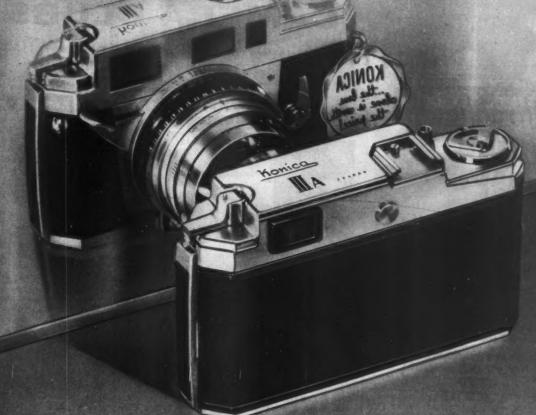
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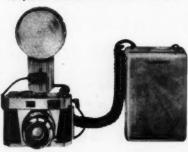
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the CAMERA CLUBS

by MABEL SCACHERI

Why not specialized clubs? Avoid those policy wrangles caused by trying to ride two horses at once.



Some shutterbugs join camera clubs primarily forkicks and some primarily to improve their photography. Both types join the same club. Then you hear the program chairman yowl, "Please turn

in more prints and slides for the monthly contest—it isn't fair to the judge to show him just a handful." Or else, "You said you wanted a basic photography course, so now why don't you attend our classes?" Oh sure, people say they joined the club for both reasons, but they didn't.

Serious souls who want to learn something are in the minority the world over. They make the playboys uncomfortable. Therefore I have long believed that the camera fans should sort themselves out and each type have a club providing the kind of activities they really want. There is at least one such specialized club.

This club is the Women Pictorialists of Pittsburgh, started in 1954 by Mrs. Nicholas Haz and Isa Sharon. Membership is limited to 16, and they getright down to the root of the matter, giving themselves tough assignments. One assignment was "Churchgoers," another "Communications." Then they got tougher. This year the ladies are wrestling with the job of making a first rate shot of soap, a mirror, a towel and a timepiece.

When assignment subjects are first suggested, the club votes on them. If the majority votes "Yes," everybody is obliged to carry out the assignment, and to do it over and over until the club accepts the result.

Of playboys and triflers

Now—I am not saying "down with those triflers who prefer scavenger hunts, auctions, photo quiz programs, club picnics and other photo entertainments." It is perfectly okay to join a club which offers more fun and companionship than instruction. But most of the split-ups and wrangles on policy come about when a club tries to ride two horses at once.

Now if I go on from this point and

tell you about what some other clubs are doing, they are going to think I list them with the playboys and triflers. No such thing. I am sort of a trifler myself, probably, for I do enjoy leaning back in my chair and listening to a club speaker hand out good tips and sage advice, with no effort from me. You can see which kind of club I ought to join.

I notice that some of the best advice to amateurs, as quoted in club bulletins, comes from newspaper and magazine photographers who serve as guest speakers. The Dallas, Texas, Camera Club had a talk by Miss Doris Jacoby of the Dallas News photographic staff on "Doing What Comes Naturally." She evidently felt that some amateurs tend to ham it up too much. She listed four don't's: Don't contrive. Leave the glasses off the dog and pipe out of his mouth. Don't mechanize and get lost in a maze of gadgets. Don't standardize. Look for a new angle. Don't overdramatize. Leave the phony dramatic poses to someone else.

Hints and how to's

Many club bulletins include the household-hints kind of suggestions, from members or speakers. The Manitoba Camera Club advises that one way to loosen chemical deposits from bottles is to drop a package of thumb tacks into the bottle, add a pint or two of water, and shake vigorously.

This same club tells how to make prints look richer without giving them a shiny varnished surface. They say to mix one part of mastic varnish, one part of poppy oil and two parts of turpentine, rub in with cotton wool, and wipe off surplus with clean cotton wool. If this recipe fouls up a print for you, send complaints to Manitoba.

It seems to me that more and more business houses are going in for camera clubs for the employees. How about stirring up some such deal in the place where you work? If regular meetings, with speakers and monthly contests, do not appear advisable, then you could settle for an annual contest. I have been one of the judges at such an annual contest for employees at one of our large department stores in New York. The judging is done in a room in the personnel department, and during the judging you'd be surprised how many employees from other parts of the store find occasion to stroll through. Any club bringing employees together on a basis of common interest must surely build morale. Your boss might like this idea just fine.—THE END

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35MM

by JOHN WOLBARST

Previews: An unbelievably fast 35mm film of high quality; a new and very useful developer.

When I was in Germany for the Photokina (January 1959 issue) I was given three cartridges of a new Agfa 35mm film—Isopan Record. The description of the film was astonishing.

It had an "official" exposure index of 29° DIN (about 640 on the ASA scale). However, for subjects of "normal" contrast (including good highlights and shadows) Agfa recommended exposure indexes of about 1500-2000 and higher. And with even, soft shadow lighting exposure indexes in the neighborhood of around 6000 were said to be quite the thing. On top of these claims were words about sharpness, fine grain, good gradation, etc. And to top it off, among the recommended normal developers was Rodinal 1:50 for 15-20 minutes at 68F. This is a very powerful non-fine grain developer which, in my previous experience, appeared to be unsuitable for use with high speed 35mm films.

So, with more hope than optimism I shot off a roll of Isopan Record during my travels back from Germany, using an exposure index of 2500-3000, checking most exposures carefully with two trusty meters—a Brockway Director and a Weston Master III. The conditions were those under which I would normally expose a high speed film at 1/10 or 1/20 sec. at f/2. I was shooting the Isopan Record in my old Leica at 1/60 and 1/100 sec. and f/2.

When I got back I invested the second and third rolls in a series of carefully controlled exposure and development tests, and also examined some samples made by Executive Editor Burt Keppler. Finally, I developed my precious travel pictures in Rodinal 1:50 for 15 minutes at 68F. This is the low end of Agfa's recommended times, so I was very far from forcing development. The result: A string of clean, fog free, essentially "normal" negatives which printed easily on No. 2 or No. 3 enlarging paper with a minimum of tinkering.

I would be kidding no one but myself if I wrote that these matched the quality possible with a good medium high speed film. There is visible graininess in a closely viewed 8X enlargement, and pronounced graininess in a 15X enlargement. But the grains are razor sharp in appearance, and the pattern is not displeasing. The film shows to a marked degree the quality

of sharpness, and the images hold together well. This is going to be an important new photographic tool, for specialized work, and we will have a detailed report on it in a coming issue.

New developer idea

Wouldn't it be nice if there were one simple-to-use developer which would do an outstanding job of developing every one of the many films on the market? Unfortunately, the requirements for getting the most out of a slow film such as Adox KB-14 are quite different from those for getting the best results from such a high speed film as Kodak Tri-X. Essentially, KB-14 ought to have a non-fine grain developer designed to produce maximum sharpness: the film itself is of sufficiently fine grain to produce a low graininess result. Tri-X, on the other hand, benefits from the graininessdamping action of a semi-fine grain or fine grain developer.

An interesting and novel attempt to satisfy both types of requirements is Edwal Fine Grain Concentrate #7 (Edwal Scientific Products Corp., 420 W. 111 St., Chicago, Ill.).

For want of a better term I'll dub this a "convertible" developer. It comes in highly concentrated form. Basically, it's a non-fine grain formula, designed for use with slow and medium speed fine grain films (diluted 1:15 with water). However, by diluting the concentrate in a 9 percent solution of sodium sulfite (instead of in plain water) Fine Grain #7 becomes a powerful but soft working fine grain developer for high speed films. To make it easy for you, Edwal supplies a little plastic cup; just fill this with sodium sulfite and dissolve in 16 oz. of water and you have the required 9 percent solution.

The "convertible" developer idea is not a completely new one. For example: 7.5 grams of Elon and 100.0 grams of dessicated sodium sulfite, plus water, are the basic ingredients for a liter of semi-fine grain Kodak D-23. Add to this formula 15.0 grams of sodium bisulfite and you have Kodak D-25, a really ultra-fine grain developer. However, Edwal Fine Grain #7 appears to work well with every film I have tried, including Agfa Isopan Record. Incidentally, users of larger cameras will be interested, too. There are various dilutions for roll and sheet films, and this developer gives the cleanest and most pleasing results I have yet had with Kodak Royal-X Pan roll film. We'll have a full dress report soon .- THE END

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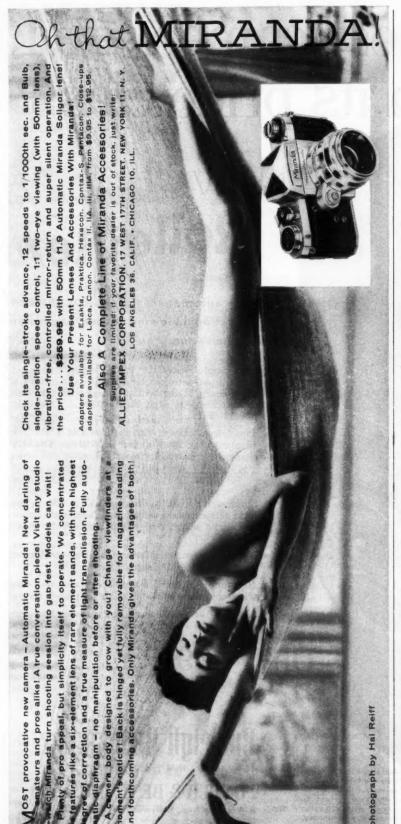
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the LARGE CAMERA

by ANDREAS FEININGER Staff Photographer for Life

How to build your own 4 x 5 telephoto camera. Part II.



Next to possession of a sharp lens of sufficiently long focal length, the main requirement of any workable telephoto camera is rigidity. For two reasons: 1. Compared to a lens of standard focal

length, a longer-than-standard lens produces not only a proportionally larger image, but also magnifies, in direct proportion to its greater focal length, the effects of camera motion in the form of blur. Hence, the longer the focal length of a lens, the more important it is to make sure that the camera is absolutely still during exposure if one expects sharp negatives. 2. The greater the overall length of a camera, the more subject it is to vibration and accidental movement during exposure. Because of this, large-size telephoto cameras must be firmly supported, either at both ends or along their entire length.

Take a look at Fig. 1. It shows one of the author's latest telephoto cameras, a 4 x 5 Deardorff view camera equipped with a Dallmeyer Grandac lens of 40-in. focal length. Because this "true" telephoto lens requires only a bellows extension of approximately 14 inches, it could be fitted directly to the camera, mounted in the ordinary way on a standard-size lensboard. So far, everything is strictly "normal."

But now take a second look and note how the entire structure is supported two ways: 1. Because of its great length and weight, the telephoto lens is supported by an L-shaped wooden yoke on which it slides back and forth during focusing. 2. The entire camera rests on a solid piece of wood which is supported at both ends by a five-legged "tripod."

This is the principle which will insure your telecamera's rigidity: support the lens; support the camera in its entire length; support the camerasupport both front and back.

support both front and back.

Although the principle of rigidly supporting a telephoto camera never varies, the same result can be achieved

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ontinued from page 42

LARGE CAMERA
(Continued from page 42)

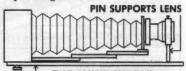
in several different ways. Figure 2 shows such a variation. For example, instead of supporting the lens by a yoke, it can be supported by a quarter-inch metal pin fastened to its front end by a clamp-on ring which, during focusing, rides on a flat aluminum rail approximately ¼ in. by 2 in., which in turn is screwed to the tripod socket of the camera as shown in Fig. 2. This type of lens support is particularly recommended for cameras with



1. Deardorff 4 x 5 has 40-in. lens supported by L-shaped wooden yoke, rests on solid piece of wood in turn supported by five-legged "tripod."

double or triple bellows extensions since, fully extended, the comparatively frail tracks of such extensions are liable to sag under the heavy weight of a telephoto lens.

Instead of the girder-like, rocksteady, but rather complicated "fivepod" shown in Fig. 1, a long telephoto camera can be supported almost as well by resting the rear of the camera on a regular tripod while the front end is supported by an ordinary, collapsible light stand.



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2. Telephoto lens can also be supported by metal pin.

No matter how good the lens and how rigid the camera support, telephotographs occasionally are not as sharp as they ought to be. The two most common causes are:

1. Poor filter quality. Long-focus lenses magnify not only the image of the subject, but also the effects of undesirable influences. And since most telephotographs will have to be filtered in order to offset the contrast-lowering effects of atmospheric haze, it stands to reason that color filters used in conjunction with telephotography must be of exceptionally high quality.

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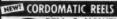
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Color printing? Sure you can do it. But don't believe the jokers who insist it's a lead-pipe cinch.



I disagree strongly with statements, often made to lure the beginner into color printing, that making good color prints is a lead-pipe cinch or that no special equipment is

needed. In color printing, as in any other branch of photography, a real effort leads to good results. But you do need the proper tools for the job.

I'm not suggesting that you'll require a course in engineering, or that you mortgage the old homestead to equip yourself. However, the steps in making a color print are a bit numerous. Careful attention to detail, patience, plus the use of the correct equipment will help you avoid pitfalls and discouragement.

For example, a small temperature error, or one in choice of a filter, may not completely ruin your results. But a combination of errors, abetted by faulty equipment, could wreak havoc.

Let's start our discussion by asking you about your thermometer. A 39¢ one won't do! The \$3 Kodak Color Thermometer is accurate to ½°, as are some dial thermometers of the Weston variety. For greater accuracy purchase the Kodak Process Thermometer. This can be read quickly and is accurate to ½°.

Modern enlargers have a "color head" or drawer between lamp and condensers for placement of color filters. There's also a heat absorbing glass to protect the filters. This permits the use of inexpensive acetate filters as supplied by Kodak and Ansco. In this position filters can't affect sharpness. If your machine doesn't have a color head, write its maker asking if it's available as an accessory.

If a color head is not available you'll have to use "lens grade" filters. These are currently available only from Kodak. To use them have your dealer fit your enlarger lens with a filter adapter ring and a Kodak Gelatin Filter Frame Holder. An alternate method is to use the holder for filters ordinarily used with variable contrast blackand-white papers. Don't use acetate type filters on the lens unless you want rather unsharp results.

Voltage variations, as well as filters, can affect the color quality of the light. Devices like the Time-O-Lite Monitor made by the Industrial Timer Corp., 1407 McCarter Highway, Newark 4, N. J., or the Variac by General Radio Co., 275 Massachusetts Ave., Cambridge 34, Mass., should be installed between enlarger lamp and outlet.

While on this subject, check your enlarger lamp to see if it's the right one. If it looks blackened or if you've used it a lot it may be burning too yel-

low. Get a fresh one.

A great deal of color printing work is done in completely dark rooms or, when handling Kodak materials, by the weak light of a Kodak No. 10 safelight. With the lights out, see if you can find and manipulate trays, the enlarger, your enlarging easel, locate filters, etc., with ease. I'd even suggest a "dry run" of all the steps so that you'll be really attuned to what you're doing when the time comes to make actual prints.

Trays should be large enough so that you can get prints into them without the danger of cracking them, and out again without the danger of breaking your finger nails. Adequate tray size also insures that you can give prints proper agitation. Make sure your trays are really clean before you use them. Don't skimp on the amount of solution used. It's always better to be a bit generous in this respect than to run the risk of streaky, uneven or incomplete chemical action.

Your easel, or paper holder, is also an important item. See how easy it is to load it with paper in the dark. You shouldn't have to fumble to get the edge of the paper under the guides, nor should the easel crease edges, let paper slip, or slip around on the enlarger baseboard. I've found easels with fixed borders like those made by the Saunders Co., P. O. Box 111, Rochester 1, N. Y.; the Speed-Ez-El made by A. J. Ganz Co., 115 N. La Brea Ave., Hollywood 36, Calif.; and the Four-Way Easel by the Airequipt Mfg. Co., Inc., 20 Jones St., New Rochelle, N. Y., ideal. The Speed-Ez-El is rather light and should be taped to the baseboard to prevent slipping, but it's easy to load.

For heavy duty use I'd suggest your dealer show you the Beseler, Simmons, Saunders Lifetime or Dialmaster, or similar easels. These are heavy and don't slip around on the enlarger baseboard. The margin adjustments really stay put. All have devices which grip the edge of the paper and hold it in place while you lower the masking bands.

An easel of special interest is the Saunders Colorprint Duplicating Easel. This lets you make one 8 x 10, two (Continued on page 114)

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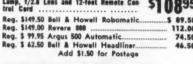
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PICTURES in a MINUTE

by JOHN WOLBARST

Want a picture of your TV favorite? It's easy to photograph the tube with the Polaroid Land camera.



For this column I'm indebted to my readers. First of all to those who kept writing in and asking how to take pictures of the TV image. And secondly to some very kind and cooperative

people (especially Miss Joan Townend and Albert W. Floyd) who sent me some excellent samples of this kind of work and told me how they go about it. For the truth of the matter is that I hardly ever look at the blasted machine in our house and so never had any desire to photograph the tube.

However, now that I've been introduced to this type of armchair photography and have experimented a bit, I find that it can offer rare and wonderful subject matter. Really, it's quite some fun. The technique is simple, and any Polaroid Land camera (except possibly the Model 80 Highlander and the very old Model 95) is suitable.

To begin with, you need a good TV set, and the bigger the screen the more satisfying the results. If your set habitually presents a shaky, unclear image, with faint ghosts appearing in odd places, it's practically a waste of time and film to snap pictures of ityou won't be happy with the results. However, if your set is in good shape, and if you know how to tune it for maximum clarity, it's easy to make astonishingly good pictures. In fact, when a big screen set (24 in., for example) presents a close-up portrait of someone, the head is very much larger than life size. As a result, the camera produces a big image on the film.

The condition of the set and also the distance from the TV transmitting tower will determine which film/camera combination you can use. For example, one correspondent assured me that it was impossible to use Type 42 film (not fast enough) even with the f/4.7 lens of the Model 110A camera at widest opening. Yet, with our 24-in. Philco I was able to do very well with Type 42 film, even with the "slower" lens used on all current Polaroid Land cameras except the Model 110A.

Again, on the matter of screen contrast, there were differences of opinion. According to some people, the screen contrast and brightness should be stepped up. Others insisted just as strongly that the contrast and brightness should be kept normal (I'm inclined to agree with this, if the set normally provides a bright, sharp image. And I think all the room lights should be off, or at least be very dim, when actually making the exposure.).

A tripod or other firm support of suitable height is a must. Try to get the lens aimed dead center on the tube. If it points up, down, or sideways, distortions are introduced and it's hard to get sharp focus. If you plan to do much TV snapping, it's a good idea to make some guide marks on the floor so the camera can be set in exactly the same position each time.

Set the camera to the closest focusing distance. That's 3 ft. on some models and 31/2 ft. on others. I'm told that it's possible to focus accurately with the rangefinder, using the screen lines or other images for a target. However, I couldn't do it successfully, so I'd recommend using a tape measure or long ruler. Measure 3 ft. (or 31/2 ft.) from the face of the tube to the front edge of the lens mount. Since there's usually a glass plate protecting the front of the tube it may be necessary to allow for this by moving the camera closer about an inch or two.

There's no doubt that Type 44 film is the best choice for TV snapping. Its very high speed lets you use a faster shutter speed than with Type 42.

With all camera models except the Model 110 and 110A Pathfinders, try setting 11 (or 2) with Type 44 film. Set your Pathfinder to 1/30 (or 1/25) with the lens opening control set between f/5.6 and f/8.

With Type 42 film try setting 10 (or 1); on the Pathfinders try 1/30 (or 1/25) and set the lens to the widest opening (f/4.7 or f/4.5). Unless your set delivers a very bright image, I think owners of the Model 80 Highlander will be unable to use the snapshot speeds. Set the camera to EV 12 or 13 (or 2 or 3) and "B" and make the shortest possible time exposure.

At best you'll be using fairly slow shutter speeds, so some timing is desirable. Try to catch those moments when the subject is still-comedian waiting for a punch line to sink in, interviewer and victim in deep thought, actor registering shock, etc. Some of the better dramatic programs go in for ultra-close-ups of faces, hands and other objects. These are the best types of subjects.—THE END

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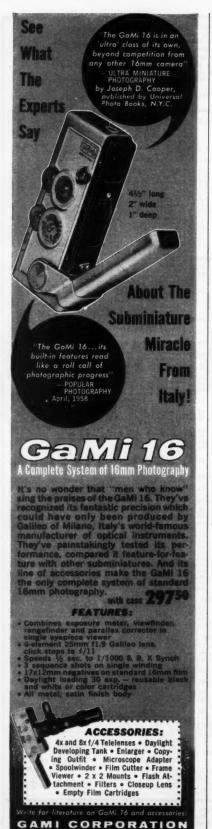


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ULTRA

by JOSEPH D. COOPER

More news from Photokina; the problems of standardization.



As reported in last month's column, there were indications at Photokina that there will eventually be two standard types of film cassettes for ultra-miniature cameras: the German (probably a

single supply cassette) and the Japanese (twin cassettes).

Actually, the problems confronting the manufacturers in effecting this standardization are very complicated indeed. Cameras that rely upon a pin advance, for which film edge perforations are necessary, have an image width limitation of 10mm or 11.5mm, depending on whether double or single perforated film is used. Cameras that use a take-up spool, with an inner core to which the film is fixed, can use unperforated film, with images as wide as 12mm (as with the Makinette.) If a single standard is to be achieved, the manufacturers would first have to agree on the film transport system. The take-up spool is compatible with a simpler transport mechanism. The pin advance, with perforated film, is more positive and may result in less film abrasion. Cassettes for the pin advance system are much easier to make and load and hence should eventually cost less.

The injection loading method, using a pin mechanism for advancing the film, is not new. This was the way the old Agfa Karat cartridges were used. The Eastman Kodak Co. recently reintroduced injection loading with its Signet 80 camera. A new single-frame (18 x 24mm) 35mm camera shown at the Photokina, called the Orix, also uses injection loading and Karat cassettes. It is made by the Welta camera works. Aside from ease of loading, the manufactures claim that film will be coiled without off-angle stresses and hazards.

Another approach to packaging of film loads is the standard open spool with paper leader. Walter Kunik, who makes the Tuxi and Peti cameras, both of which are widely distributed in Europe, insists that his paper backed 17mm roll films minimize the hazards of felt light traps and winding abrasions.

A side issue is whether to use plastic or metal. Plastic is cheaper and easier to make, but it attracts dust.

Image format also needs to be standardized. Of 16 cameras, eight use the 10×14 format, two use the 10×10 size while the rest are assorted. Minox, of course, has gained acceptance for its own standard. Standards are important in camera design, but they also govern in making slide mounts, enlarger masks, viewers, projectors, etc. The chances are that the 10×14 size will win out, in view of its head start.

An important new trend is in lens focal length. Of the six new cameras, four had lenses of 20mm, which more closely approaches the 17mm diagonal of the 10×14 format than does the 25mm lens, which heretofore has predominated, probably as a take-over from cine cameras. The 20mm lens has a greater depth of field and hence makes more feasible the use of larger lens apertures.

The coupled rangefinder is likely to be used only with lenses of wide aperture or longer focal length. The Makinette, with a 29mm f/1.9 lens, meets both of these conditions and hence can well use a coupled rangefinder.

Looking at the situation over-all, one gets the feeling that the rush toward the ultraminiature is of bandwagon proportions. Yet, unless the wagon is boarded in an orderly manner, some will get hurt.

This being a report on new items and trends, it is so easy to overlook old friends. The GaMi 16 still looked as good as ever as a marvel of precision apparatus. The camera boasts both coupled rangefinder and coupled light meter (extinction type) and the manufacturer hastened to point out his "firsts," with some good reason. Minicord was on display for the many adherents who like its superb optics and twin-lens reflex focusing. Minox had previously released its light meter model B, but it was the talk of the show, alongside of the tremendous Minox enlargement standing 7 ft. 4 in. by 5 ft. 4 in.—THE END

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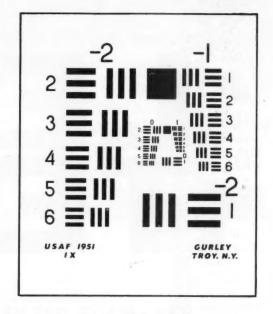
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CAN I REALLY TEST MY LENS FOR RESOLUTION?
HOW SHARP MUST A 50MM F/2 OR F/1.5 LENS BE?
WHAT IS THE MAXIMUM ALLOWABLE CORNER FALLOFF?
IS OVERALL OR CENTRAL SHARPNESS IMPORTANT?
ARE WIDE-ANGLE AND TELE LENS EASILY TESTED?
WILL A LENS BE AS SHARP IN DIM LIGHT AS BRIGHT?

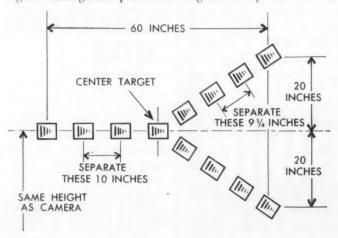
For eight years, Modern Photography has been seeking a simple solution to a complex problem; how can our readers test their 35mm camera lenses accurately? At various times, brick walls, optical bench tests, tall buildings at infinity have figured in the possible solution. However, none of these tests was scientifically accurate or as conclusive as we would like. Results were obviously quite relative. We asked Bennett Sherman, Project & Research Engineer of the Farrand Optical Company, to devise a test specially for Modern's readers, Sherman, drawing on Farrand Optical's vast resources and knowledge of tests, produced a definitive test series. By taking pictures of and examining the negatives from a test chart originally designed for the U. S. Air Force, you will be able to check your 35mm camera lensnormal, tele or wide-angle-against basic minimum standards. You can determine best aperture, amount of image fall-off in the corners compared with central image, unsharpness caused by shutter vibration. You can test any camera lens you intend to buy as well as check your present camera's performance. Only two items of equipment are essential to these tests—a series of 12 test charts and a simple high-powered 20X pocket magnifier. To simplify the task of obtaining them, Modern will be glad to send a packet of 12 test charts to any reader sending \$1 (no stamps please) to the TEST EDITOR, Modern Photography, 33 West 60 St., New York 23, N. Y. If you have trouble finding a good 20X magnifier Modern can also supply the actual models used for the test at \$3 apiece. Supply is limited. So, in answer to the many queries on how to make a comprehensive lens test, turn the page.

1. THE TEST CHART we're going to use is the 8010-N Target originally designed for the U.S. Air Force, now produced as a glass negative plate by W. & L. E. Gurley Engineering and Scientific Instrument Co., Troy, N. Y. The glass plate is \$75 but Modern has reproduced it as a series of 12 test charts which are available for \$1 to all readers (see text, page 57). There are four groups of test lines in diminishing sizes-Group -2 (the largest size), Group -1, Group 0, and the smallest, Group 1. Group —2 begins in bottom right-hand corner and continues from top left downward. Group -- 1 is at right, Groups 0 and 1 in center (progressing in same manner as Groups —2 and —1). Each group has six pairs of lines, each marked by a number. Thus, lines are designated as being in, say Group -2. Pair 3 (that would be the second set of lines down on the left hand side of the chart). Practice identifying pairs within groups quickly when you get your charts so you are familiar with the various



pairs and groups and their location. Our test will involve photographing a series of 12 such charts and then examining the negatives critically with a magnifier. By determining just which lines are sharp on the negative we can learn how sharp the lens is and then actually plot a graph of lens performance which we can compare with results from other lenses tested in a similar manner.

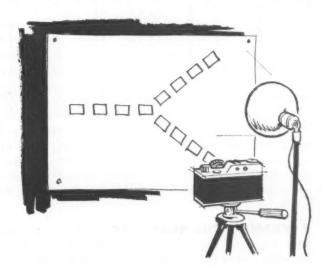
2. PLACE TEST CHARTS ON A WALL. Follow the diagram below. Naturally the wall must be quite flat. We suggest mounting the charts with masking tape so you won't mar either charts or wall. The room itself must have window shades or blinds so you can make it fairly dark during the test. You'll need adequate wall space—five feet wide and five feet high. It's important that you pick a room which will give you a good distance from the test wall to the opposite wall. For 50mm lens tests you need to be only 8 feet 9 inches from the test wall. If you should want to test a 135mm lens, however, the chart on the opposite page will show you that your room must have over 22 feet of space. Better mount your center target at eye level to make focusing easier once you start actually making the tests. No doubt you'll wonder just how accurately the distances indicated on the diagram must be followed out. Keep your measurements within a possible ½s-in. error and you'll be all right. Although the placement diagram at left shows the targets mounted on their sides with the



target bottoms facing left, the direction of mounting is not critical and you can therefore mount them right side up, which might make them a bit easier to read when actually checking your negatives with a magnifying glass. The test charts should be as flat against the wall as possible. To maintain flatness when not in use, keep the test charts sandwiched between cardboard, with some weight piled atop them. Another method of storage: sandwich them between rather tightly placed books in your bookshelf.

3. POSITION CAMERA AND LIGHTS. You'll need only a single light source for your test exposures. At any hardware store you can purchase a 15-watt standard screw-base frosted bulb which will fit a standard satin finish reflector. The reflector should be either on a stand or fitted to a clamp fastened to the back of a chair or other support. In any event, the light must be exactly opposite the center chart, about six feet from the floor, and exactly ten feet from the center target. Here the light will stay during all your tests. On the other hand, you'll have to move your camera, mounted on a solid tripod, back and forth from the wall, depending on the focal length of the lens being tested. An elevator tripod is probably the easiest to handle. Position your camera exactly opposite the central target. You can test the camera for levelness with one of those small carpenter levels that can be bought at a hardware store. Although a lens test can actually be set up with a number of different film-developer combinations, we're going to reduce all variable factors by insisting on one universally available film, Kodak Panatomic-X. Our test will be a test of both film and

lens. However, by choosing an extremely fine-grain film with a higher resolving power than the 35mm camera lenses we are testing, we can get an accurate comparison with other lenses tested by using the same film and developer. We'll give you the data on proper developer and processing time later. Incidentally, Kodak's Panatomic-X can resolve as high as 120 to 150 lines per millimeter. Our 35mm camera lenses will generally resolve only up to about 90 or 100. If you don't understand this business of resolving power. don't worry. By the time you finish your lens tests you'll be able to discuss it with the experts. Now we're almost ready to make our test exposures.



4. CHECK CAMERA-TO-CHART DISTANCE. From the chart below pick out the focal length of the lens you're testing and place your camera at the proper camera-to-target distance. Note that the distance is calculated from the back of the camera, not the front of the lens. If your lens is of a slightly different focal length, you can figure out the correct distance by interpolating between focal lengths. For instance if you are testing a 55mm lens, look between 50 and 58mm. The difference in distances is 8 in. Therefore the correct distance for a 55mm lens will be five inches more than that

FOCAL LENGTH OF CAMERA LENS	DISTANCE OF CAMERA BACK TO TARGET WALL
21mm	3 FEET, 5 INCHES
28mm	4 FEET, 7 INCHES
35mm	5 FEET, 9 INCHES
45mm	7 FEET, 2 INCHES
50mm	8 FEET, 6 INCHES
58mm	9 FEET, 2 INCHES
85mm	14 FEET, 1 INCH
90mm	14 FEET, 11 INCHES
100mm	16 FEET
105mm	16 FEET, 6 INCHES
125mm	19 FEET, 8 INCHES
135mm	22 FEET, 3 INCHES

for the 50mm, or 8 ft. 11 in. After getting your camera into position, adjust lens focusing scale to the exact footage. You will probably have to estimate some point between markings on the engraved footage scale of your camera or lens. Now look through your rangefinder or check your ground glass. If the center target is not in focus, your camera or lens is out of alignment. Don't worry if the charts don't reach out exactly to the edge of your viewfinder. Just be sure the center chart is in the center of the finder.

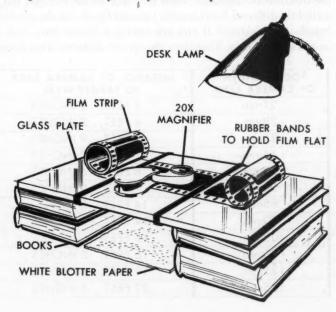
EXP. NO.	F/STOP	EXPOSURE TIME
1	F/2	3 SEC.
2	F/2.8	6 SEC.
3	F/4	12 SEC.
4	F/5.6	24 SEC.
5	F/8	48 SEC.
6	F/11	96 SEC.
7	F/16	192 SEC.
8	F/22	384 SEC.

5. MAKE THE EXPOSURES. Here's your table for making the necessary series of test exposures. Note that we're making only time exposures. There's a good reason for this. By not using the shutter itself to make the exposure we eliminate a possible detrimental factor, shutter bounce, which might influence the lens resolving power. Instead, set your camera on B or T and attach a cable release. Darken the room by pulling the shades or blinds. Press the cable release. Turn on the 15-watt bulb as soon as possible and begin your exposure count from the time you turn on the bulb, not from the time you press the shutter release. Turn off the lamp at end of exposure and then close the shutter. Advance the film to the next frame and make the next shot. Complete your test exposures. In order to differentiate between the negatives, place a small card with the exposure time for each shot on the wall. If you'd like to see how much

shutter bounce may be affecting your camera's ability to make sharp pictures, use your exposure meter and with a stronger bulb make a second series of shots using your camera shutter. After the last exposure, rewind the film. Develop the film or ask your photofinisher to develop it in fresh Kodak Microdol for $6\frac{1}{2}$ min. at 68° , agitating a few seconds every 30 sec. Keep all your processing solutions at exactly 68° . Don't substitute any other developer for Microdol. If you use any other developer or alter the processing instructions you will nullify the tests. Make sure your wash water is also at 68° and that it remains thus during the 10 minute minimum washing time.

6. EXAMINE THE NEGATIVES. The diagram below shows you the best setup for viewing your negatives. The desk lamp, incidentally, should not shed light atop the negatives. Point it at the white blotter paper underneath so that the light is reflected upward through the negative. Using the 20X magnifier is sort of tricky (see page 57 if you have trouble getting one). It's generally difficult to focus an image sharply with so strong amagnifier. Here's a good way of doing it, if you own the sort of magnifier pictured. Attach strips of adhesive tape to the side of the magnifier case that faces the film. Use as many strips of tape as necessary until you build up the distance between

magnifier and film to the exact focusing distance. Now take a look at the negatives through the magnifier. Start with your first exposure. The large lines on the test charts should stand out quite clearly, particularly the lines in the center of the negative. Look closely at the smaller pairs of lines. You will come to the last lines which you can actually distinguish. The next series of lines you will be unable to see separated at all. You probably can see finer lines in the center area of the negatives than in the corners. It will take you some time to get the hang of reading the lines properly. You may need to readjust your lamp for optimum brilliance. It's impossible to get an accurate line count unless the film is flat. If needed, use glass atop negatives.



7. READ THE RESULTS. Now it's time to translate the lines you see into lines per millimeter. Examine all the test targets. Check the central target carefully. Determine the finest pair of lines you can distinguish and then read the pair and group number. From the chart below, you can find the number of lines per millimeter resolved at the center at maximum aperture. Check the central target of each negative, determining the finest lines resolved. In addition check the charts at the far edges of the negatives. Of course, the edge targets will not have the same resolution as the center target. However, the lines resolved at negative edges at any aperture should be no less than two thirds of the lines resolved at the very center. As the lens is stopped down the lines per millimeter at the edges should show less difference as compared to central definition. Thus, lenses with large apertures are generally sharper centrally at full opening, but give better overall definition at

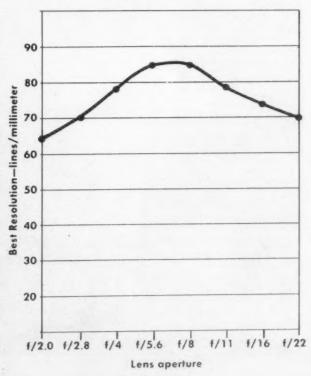
GROUP	PAIR					
	1	2	3	4	5	6
- 2	121/2	14	16	18	20	22
-1	25	28	32	36	40	44
0	50	56	64	72	80	88
1	100	112	128	144	160	176

LINES PER MILLIMETER

smaller openings. The important thing: make sure one person does all the testing. If different people attempt to read the lines-per-millimeter marks on the negatives, you're bound to get varying answers as to the finest lines that can be seen through the magnifying glass. Lens testing is somewhat subjective.

8. EVALUATING THE TEST. Trace the "best resolution lines per millimeter" chart below. Include your widest aperture if testing a lens faster than f/2. On the chart put pencil points at lines/mm resolved by your lens for the center targets at each of the openings tested. (On the chart below, we've done this for a 58mm f/2 Biotar lens which we've actually tested.) Draw lines between the points marked. Now you have a chart of optimum central resolution. In other words, you can see just what opening will deliver maximum central performance. With so-called

standard fast (f/2.8 to f/1.5) lenses for 35mm cameras, at least 50 lines per millimeter should be resolved centrally at full opening. Exceptional ones may produce 90. Wide-angle and tele lenses will rarely approach this figure since they represent a compromise in terms of resolution. Now check the resolution of the edge charts. Disregard the last targets on the right which are used for positioning only. However, the third targets from the center on both right and left should in all negatives yield approximately the same maximum lines of resolution. Difference between these three targets should be no more than 15%. If greater, the lens or camera focal plane is out of alignment. The Biotar lens resolution at right decreases after point between f/5.6 and f/8. On any 35mm camera lens, resolving power at smallest aperture should never fall below that at full opening. Always compare center and edge resolving power at maximum aperture. A lens good at the center and poor at the edges-say, below 25 lines/mm-is to be avoided.



IS 35MM BEST FOR CHILDREN?

According to Garry Winogrand, equipment alone isn't the answer. Follow his advice, learn from his techniques, and improve your own family photographs.



KEEP YOUR CAMERA LOADED-

and close at hand. If equipment is stashed away in the closet, you'll miss more shots than you make. Garry Winogrand's photographs of his daughter Laurie which appear on these pages are not part of a specific, planned project-but the products of many unplanned sessions. All were taken with a Leica M3 and 50mm Summicron lens. When shooting indoors he prefers a fast film, for these pictures used Ansco Super Hypan and Dupont SX Pan. He doubles manufacturer's exposure index, processes by inspection in Ethol UFG, a powerful but soft working developer.

STICK WITH AVAILABLE LIGHT

for portraits. A child may be startled or frightened by flash and flood. In addition, most don't take well to posing. The answer, says Winogrand, is to "follow them around with the camera. Don't make a big deal of taking the picture. If you do, the child will react to you, the photographer, and you won't be able to get the natural candid photographs you're after." In photograph at right, Laurie's attention is distracted by her mother; lighting is direct morning sun coming through window. Illumination left is diffused window light.





35MM FOR CHILDREN (cont.)

PAY ATTENTION TO DETAILS AND GESTURES.

Above, Winogrand framed carefully, included only baby's arm and buttocks, mother's protecting arm and hand. When shooting in kitchen or bath, as here, lighting-exposure problems are minimized. Walls which are white or light in color act as reflectors, casting illumination back into shadows and decreasing contrast. When working indoors, Winogrand always exposes as indicated by meter, a Norwood Director. He takes reading in same light as most important area of subject.

AVOID CLICHES WHEN TAKING FAMILY PICTURES.

How many babies have been portrayed clutched in the arms of doting adults? How much more natural, and meaningful, the mutual interaction between child and grandparent at right! Winogrand's shooting technique is fairly standard for a 35mm camera user. He usually exposes several frames in any given situation, making slight variations in angle, recording slight variations in posture or expression. Unless it is absolutely necessary, his exposures are never longer than 1/25 second, the slowest speed he considers safe without risk of blur.



CONTRAST IS BIGGEST PROBLEM

encountered in available light work. In situation at right, where direct sunlight entered room through window, contrast between highlights and shadows was greater than film could encompass, required a compromise exposure. Winogrand gave minimum exposure for child's face, barely recording detail, and let highlights in hair burn out completely. Actually, even diffused window light is contrasty if room is fairly large. Walls must be located close to subject in order to reflect light back into shadow areas.

WATCH FOR CHANGES IN MOOD.

A child's feelings may alter in an instant. Photograph below was taken within a few minutes of that on the opposite page. In picture opposite Laurie is alert and reacting to the world around her. Below she seems reflective, engrossed in contemplation of toys, patterns of light and shadow on the floor. Here, Winogrand exposed for child's face and burned out detail in highlight areas of rug.







53 ANSWERS PROVIDE SOLUTIONS TO MOST COMMON 35MM INDOOR SHOOTING PROBLEMS

Q. When shooting crowds, how can I concentrate attention on one person, or on a few people?



A. There are several ways to do this, among them lighting, cropping, or focus. Here, the photographer isolated the couple by controlling focus; limited depth of field threw figures in foreground completely out of focus.

Q. Is there any way to regulate the spread of the beam from flood lamp reflectors?

A. Try adding barn doors to your reflectors. The barn doors are gate-type devices that may be opened and closed to regulate the size of the beam.

Q. Is one color film "best" for shooting indoors?

A. No one color film will be best under all circumstances. The most important thing to keep in mind is suiting the film to the light source. There are three types of film balanced respectively for daylight, for tungsten lights and for flashbulbs. Each can, of course, be used with suitable correction filters in lighting conditions other than that specified.

The high speed of Super Anscochrome Tungsten makes it ideal for available light shooting indoors. And if you're more interested in prints than transparencies, or if you want to shoot in doors and out on the same roll, you may prefer a negative color film such as Kodacolor to a transparency film.

Q. Can I use daylight color film indoors?

A. Not a good idea—although you can with the right conversion filter. However, the filter cuts down on speed so much that even shooting with flash may be a problem.

Q. Why isn't direct on-camera flash recommended for portraits?

A. See photograph below.



Q. If I use flood lights indoors how can I stop people from being conscious of the extra light?

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A. You can set up your lights before your guests arrive so that the light level will appear quite natural. Or, if you have to add lights after people are already in the room, wait until they acclimate themselves to the change. Once they become interested in other people, activities, they'll ignore the floods and relax.

Q. Are long lenses totally useless indoors?

A. Not at all. The shallower depth of field at a given opening and camera-to-subject distance compared to a normal or wide-angle lens helps separate subject from background by throwing the background out of focus. Also, you can shoot far enough away from your subject to prevent camera consciousness and still get frame-filling head shots.

Q. How do you use a meter for color in available light?

A. Read the highlights and let the shadows take care of themselves.

Q. I'd like to keep my lights out of the way, but I don't have light stands. Is there any way to get around the problem?

A. A butter knife carefully inserted under the molding near the ceiling can serve as an anchor for light clamps. Knives, if care is taken, will not damage the molding. Q. I'd like to get side lighting effects with electronic or regular flash, but usually when I try it, backgrounds become much too dark. Is there any way to get the effect I want without multiple flash?



A. Try bouncing light off a wall. Light will strike subject and other walls and ceiling, filling in dense shadows.

Q. The connecting cord with my flash gun is just long enough for me to get moderate off-camera effects, but I'd like to find a way to achieve more freedom.

A. You can mount your gun on a stand or use a clamp to fix it to a chair—and buy a really long connecting cord, perhaps the coil type.

If you can't find a cord long enough, make one. Any hardware store can supply you with the same wire as in your present cord. Use the connections from an old cord to make the new one.

Q. To achieve separation between subject and background, must the actual tones be widely different?



A. Not necessarily. Separation can be achieved by lighting as well as by inherent tonal differences. Here, lighting effectively separated subject from background rug although actual tone of rug viewed in flat light is medium gray.

Q. How many photofloods can I use on one circuit?

A. That depends on the circuit. The wiring in most new homes will take more current than that in older ones. In either case you can safely use two No. 2 photofloods on one line; circuits in new buildings will probably take a maximum of three No. 2 bulbs.

Q. Is there an "ideal" height at which to place flash or flood for bounce light?

A. Yes, there is a "best" light sourceto-ceiling distance, but it will vary from room to room. If you're using floods, you can determine this distance fairly easily. Have someone raise and lower the light while you check illumination at various points in the room with an exposure meter. You will find that one particular distance provides the most even overall illumination.

Q. I like the quality of the existing light in my living room, but it just isn't bright enough for shooting. How can I raise the level of illumination without ruining the natural lighting effect?

A. Replace the existing household bulbs with floods. Take care, however, not to have too many on one line, or you may blow a fuse.

Q. Can I get a device which will eliminate hand holding the gun for bounce flash?

A. Yes, brackets are manufactured for this purpose. There are two basic types—one which fits a camera accessory shoe, the other for standard flashgun brackets.

Q. I plan to mount my electronic flash unit on a tripod or stand and use a long flash cord so that I can move around the room. Do I have to adjust exposure for varying camera-to-subject distances?

A. No, because exposure depends on distance between light source and subject. One setting will do as long as distance remains the same—but remember to avoid getting between subject and light when you can. Bounce light might be the best way.

Q. Do I need a correction filter with electronic flash and daylight film?

A. Depends on the flash unit. You may find that your unit has too much blue light and you need a mild CCY filter to correct it. However, many people do shoot daylight color film with electronic flash without a filter—and results are pretty good.

Q. How can I avoid distortion, as in photograph below?



A. Objects at edges of pictures taken with wide-angle lenses (i. e., head, top left) appear more distorted than they would if placed in the center of the frame. Also, wide-angle lenses tend to emphasize convergence. Two basic rules to follow: try not to place people at edges of picture area and keep the camera parallel to parallel lines or planes in the subject.

Q. If a negative has so little contrast and density that I can't print even on a contrasty paper, is there any way to save the shot?

A. This is one situation where ferricyaniding the print is invaluable. By acting more on highlights than on shadows, ferricyanide can often increase contrast sufficiently to make an acceptable print.



Q. What is the proper way to use an exposure meter for low light intensities?

A. Usually, in dim light, highly sensitive exposure meters will produce some reading. But in case they don't, a useful trick to keep in mind is pointing a reflected light meter toward the light source, noting the suggested exposure, and multiplying by 20. In other words, if your meter advises an exposure of f/2 and 1/100, expose at f/2 and 1/5.

Q. I have a deep aversion to trailing wires around the house for extension flash. I've heard that slave units are wireless. How do they work?

A. A slave unit is really a second, or extension, flashgun without connection to the gun on the camera but with a photoelectric cell mounted on it. When the light from the gun on the camera, either regular or electronic flash, strikes the cell it triggers the slave unit.

Q. When shooting objects reflected in a mirror, can I focus on the subject itself?

A. No-not if you want both subject and its reflected image sharp. Reflections appear as far behind the reflecting surface as the original is in front of it. Therefore, the depth of field required to render both object and its reflection sharp will be relatively great, and you will probably need a small aperture. The easiest way to determine just what exposure and point of focus will be is to focus first on the subject, then on the mirror image. These two distances will be the near and far limits of depth of field. Then, be sure these distances fall between suitable depth of field markings on lens.



Q. What can I do if subjects are camera shy, refuse to relax?

A. Give them something to do. In general, it's a good idea to enlist the aid of a friend to assit in distracting their attention from the camera. Here, the problem was solved by lighting the subject's cigarette.



Q. How do I avoid reflections when photographing around glass or in tiled kitchens and bath?



A. This is one situation where it's well to avoid flash. Instead, if you need additional light, use photofloods. With floods, you can see reflections and shift lights as needed to avoid them.

Q. What is one big advantage of a single-lens reflex indoors?

A. You can see your exact depth of field—particularly useful when shooting with long lenses or at wide apertures.

Q. When photographing people with direct flash, how can I avoid wall shadows?

A. Hold that flashgun high off camera. This will cast shadow down low, and, if subject is some distance from wall, onto the floor where it won't interfere visually with the image.



Q. Can a movie barlight be used for stills?

A. Definitely. Particularly good is the type that permits adjusting lights in various positions for a combination of direct and bounce light, or for multiple bounce light directed at various angles to walls and ceiling. Mount it on a tripod, not the camera, and leave it in an out-of-the-way spot while you move about the room with your camera. Avoid direct barlight—makes for overexposed foreground and underexposed background, particularly with color film.

Q. What is the lowest safe shutter speed indoors?

A. While some people claim they can hand-hold safely at speeds as low as 1/5 sec., 1/25 is about the lowest you can go without danger of blurred images. In any case, try bracing the camera on a chair, table, or even against the wall.

Q. Do you need a lens shade indoors?

A. Indeed you do. Chances are there'll be more extraneous light, from every direction, indoors than out. Make sure to use the right size shade for wide-angle lenses—or else you'll have vignetting.

Q. What is one big advantage of a rangefinder camera indoors?

A. Easier to focus in dim light.

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Q. How can I get unusual backgrounds?



A. If the room is bright enough, use a long lens and stop down. In this way you can visually juxtapose objects (here, girl and cat) which are actually separated by several feet, and make a considerably more interesting picture than would be possible otherwise.

Q. There are times when I seem to need less light rather than more from floods or flashbulbs. Is there a practical way to cut down on the light without getting involved with electrical devices?

A. Sure. Use diffusing cloths over the reflectors. If you can't buy them at your camera shop, try placing a handkerchief over your flashgun. The handkerchief method isn't advisable for floods however. Lamps are much too hot and may burn the cloth.

Q. I took some pictures of my daughter's birthday cake, using flash. The color was fine but the candles looked lifeless. Is there any way to prevent this?

A. Yes, try using bounce flash.

Q. Every time I photograph with my subject against a well-lit background the result is washed out detail. Is there any solution?



i i

A. It's often best to avoid photographing against an overly bright background. However, bounce flash and smaller f-stop for main subject helps in many cases. Or, try a reflector; any white material will do.

Q. What type of shutter is best for electronic flash?

A. Leaf-type but focal-plane shutters are usually synchronized for electronic flash, too, at lower speeds.

Q. I've been getting some disturbing reflections from glassware and other shiny surfaces. What can I do about them?

A. Use a polarizing filter. You'll have to open up your lens a bit to compensate for the decreased light reaching the lens, but glassware and other surfaces won't have hot spots. General color quality will improve, too.

Q. I've seen really long cable releases—several feet long. Just what good are they for indoor picture taking?

A. Just fine for photographs of young children that freeze up at the sight of a camera. Leave the camera and flash on a tripod, insert the long cable release and get close enough to the child to attract his attention from the camera. You can get a greater variety of expression from a child at play than one sitting stonily for his portrait. Push the release when you see what you want.

Q. My camera won't synchronize for flash at speeds faster than 1/50 sec. When I use Press 25 bulbs to shoot action the result is usually a blurred image. Is there a better way?

A. Yes, use a fast peak bulb, such as SF or SM. The flash duration, between 1/100 and 1/200 sec., helps freeze action and the bulb will sync with your camera at 1/25 sec. shutter speed.

Q. How can I achieve overall room illumination without using multiple

A. Try bounce flash off ceiling, angling the gun so that light will reflect against walls around the room. You can use flood light bounced off the ceiling, too.



Q. How can I get overall sharpness indoors?



A. Boosting the light level will enable you to stop down for greater depth of field. Here, a single electronic flash bounced off the ceiling produced enough light for photographer to shoot at f/8 and render both foreground and background adequately sharp.

Q. How can I expose for silhouettes?

A. In the first place, the subject itself must be suitable for silhouette treatment. That is, background illumination must be considerably higher than that falling on the object to be silhouetted. Base exposure on reading taken from background only. Film will register little or no detail in dark foreground subject. The silhouette effect can be additionally emphasized in printing.



Q. My tripod is rather outdated and has pointed metal tips on its legs that scratch my living room floor.

A. Most dime stores sell crutch tips in all sizes. You should be able to find some that will fit over the tripod leg tips—and, incidentally, provide good traction on wooden floors.

Q. Is it best to use a very fast film, or push a slower one for available light situations?

A. Pushing a slow film increases the inherent contrast in that type of emulsion—also the grain. A fast film offers greater latitude, a valuable asset in dealing with contrast. Which is best depends on what you need.

Q. What can I do about lens flare indoors?

A. First of all, use a lens hood. Secondly, run a series of tests on your lens to try to determine its flare characteristics. Lenses—even those which are exactly the same kind—do not respond in the same way to stray light. Also, a given lens will show different amounts of flare at different apertures. Only a complete test can indicate which f-stops minimize the effects of flare.

Q. Can I use a single overhead light bulb as my only light source?

A. You can—but unless you're after deep shadows and very harsh contrasts, you may not be pleased with the results. Certain kinds of subject matter, such as soldiers in barracks, below, are well suited to this treatment. If, in this kind of situation, the existing light is not bright enough, you can easily replace the bulb with one of higher wattage, or with a photoflood, and boost illumination sufficiently to make an exposure.



Q. Are any particular backgrounds "best" for photographs of people?



A. In pictures of people one of the main things to watch for is tonal separation between subject and background. For instance, when photographing brunettes, don't use a black background, as above.

Q. How can I use flashbulbs in house lamps?

A. Don't try it! Although it can be done, it's dangerous. Most bulbs aren't built to take 110 V current—will probably explode upon contact.

Q. Every time I use window light I find that the shadows on the side of the subject's face are much too deep. Do I need to use a fill light?

A. That might be one way. However, why not have the subject turn directly toward the window so that the light falls evenly on the face? To take the picture, stand between the subject and the window, but try a low angle or stand slightly to one side so that you don't block the light.



Q. Can I follow the guide numbers given by manufacturers of flashbulbs and electronic flash units?

A. Manufacturer's guide numbers for flashbulbs are quite accurate but electronic flash units are often rated high. In either case it is advisable to establish your own guide numbers. As a starting point take the guide number recommended by the manufacturer, and expose one frame. Then, bracket exposures one and two stops over and one and two stops under. After processing, select the best exposure. Multiply the f-stop used by the light-to-subject distance, and you'll have the correct guide number for that film/flash combination. We suggest that you make these tests on Kodachrome; its limited latitude and standardized development insure accurate and consistent results.

Q. Are some film/developer combinations better than others for electronic flash?

A. Certainly. But which specific combination you choose will depend on what you want to do. For instance: if you are taking a close-up portrait, and you want to reveal maximum detail and texture, you should use a slow, high resolution film. If, on the other hand, you want to photograph a very large area and your illumination is bounce light, you will need a fast film. For recommendations as to which developers are best with specific films, consult John Wolbarst's "Over 200 Film and Developer Combinations" in MODERN, June, 1958.

Q. Do I need a different black-andwhite film indoors than out?

A. Use the same film, but adjust the exposure index as recommended in the instructions packed with the film.



Q. Technically, my indoor photographs are fine. But visually they lack impact. Are there any special tricks which might help?

A. Finding interesting pictures, indoors or out, is largely a matter of imagination. Choose a suitable subject, select the best angle, and expose the film for the effect you want. Here an imaginative frame—a woman's hand and arm—adds interest to photograph of party.

GHOSTS?

Ever want your picture taken with Cleopatra or Lincoln? In 1874, it was possible. The story of the fabulous fakes of Victorian spirit photography, by Nathan Lyons.

so CREDIBLE had the claims of spirit photography become to many that by 1874 a publisher could sell a new edition of the Bible with "authentic photographs of Abraham, Moses, David, etc., all taken by spirit photography." In France, a mail order business flourished, "furnishing any spirit-photograph to order," and in San Francisco, when an enterprising railway company placed a spirit photograph on a window at the end of its car line, "thousands thronged the cars daily to ride to see it."

At the twentieth meeting of the American Photographic Society, in the year 1860, a Mr. W. Campbell of Jersey City reported a strange occurrence and asked the members of the Society for their opinion. He presented for their inspection a photograph that he had taken. It was a test exposure of a chair. In the chair, however, appeared the image of a small boy who, according to his report, was not in the studio at the time the exposure was taken. Enthusiastically it was suggested that "if such pictures can be produced at will, we have a new art." The Society studied the matter, but agreed that the effect was simply the result of using improperly cleaned, or a poor grade, glass. The occurrence was not uncommon to users of the wet collodion process. Photographers were in the thrifty habit of cleaning off old negative material from the glass and recoating it. In this way a faint image of a previous exposure might remain on the plate when the plate was used again. Although Mr. Campbell's enthusiasm was curbed, the question of spirit photography was not resolved so easily.

In Boston, on October 5, 1861, in the photographic gallery of Mrs. Stewart at No. 258 Washington Street, an enthusiastic amateur photographer named William Mumler was trying some new chemicals and taking pictures of himself. When processed, one of these, to his great astonishment, revealed not only his own image but also the image of a young woman sitting in a chair at his side. He said that while standing for the picture he felt "a peculiar sensation and tremulous motion in his right arm, and afterwards felt very much exhausted." This was all that he experienced that was unusual but "while looking upon the strange phenomenon—the (Continued on page 118)



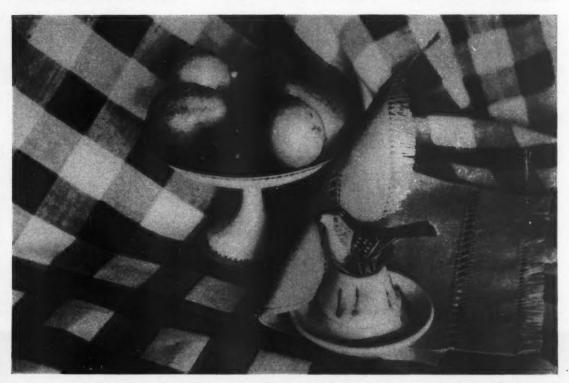
In 1893, Meredith B. Little posed for triple portrait with two spirits taken by Foster.



Humbug! was the opinion of *The Photographic Times* in 1895, after the discovery of the above painting by Mr. William Murray.



35MM STILL LIFES



IN YOUR HOME

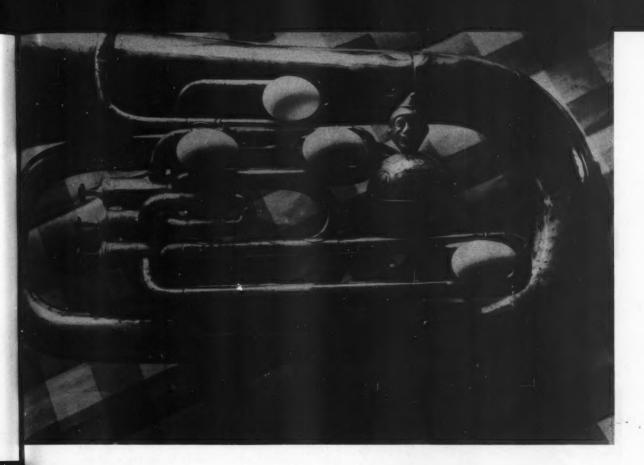
STILL LIFES, commonly thought of as being the province of the giants—large cameras, large studios and imposing banks of artificial lights—are really as accessible as your nearest 35mm camera. Or so New York commercial photographer Leonard Balish has proved. With a Leica IIIf, Plus-X film (exposure index, 250; developed in D-76 for 7 min. at 68°) and the light of an overcast day that spills into his 20th floor apartment, Balish, bracketing exposures (one over, one under, one on the nose), produced the results you see here. The trick: imagination and nerve to put crazy—or common—things together in an artful manner. They're as near as your breakfast table, these still lifes, or as far away as an old attic trunk. There are no rules about what should be used—anything goes. But shapes and textures are traditionally important. Let rectangles and ovals, or hard shiny surfaces and rough ones contrast. Sometimes similar forms can successfully interplay (horn and eggs, top, page 75 show superimposition of curved shapes). Making the exposure takes only an instant. What takes time is setting up the still life, checking and re-checking to make sure that you've es-

After brunch, bird, fruit caught the eye, above. Table faced window, overcast sky. Slow shutter (1/25-1/15 throughout) should mean tripod; these were handheld!

35MM STILL LIFE (cont.)

tablished some sort of order and relationship among unrelated objects. Whether it makes sense or nonsense (hats, pistols, below) the still life must fit its format. Arrange the elements either horizontally as below, or vertically, page 72. It's advisable to try to fill the frame. Focusing at 31/2 ft. (the camera-to-subject distance for these pictures) isn't easy. There is the problem of losing sharpness, and of parallax error. Balish focuses first, then frames the subject exactly with his accessory Imarect viewfinder which has parallax compensating marks. He rarely allows additional room around the composition, although you may find it a useful technique in that it will let you crop later if necessary. No matter how elegant or precise the still life set up is, it will, in a manner of speaking, be the perfect bomb unless it's well-lit. And the light depends upon the subject and desired effect. You may want a fairly shadowless light (page 73). Other situations may call for strong shadows. (Since Balish used windowlight, none of these pictures have—or need -deep, sharp-edged shadows.) A common goal in much still life work to date is simply: realism. Painters invite the viewer to reach out and pluck a fiddle string, the detail is so faithful. How often have you felt inclined to peel a painted peach because it was so convincingly "lifelike!" This is partly the fascination for picturing still lifes-to make the objects nearly quiver in their reality. Photographically, this means sharpness. So, light your subject well, use a fine-grain film and lens opening that will produce both maximum sharpness and depth of field for the camera-to-subject distances in which you are working.-THE END





Never mind the whys and where- △ fores of a battered old horn, less than half a box of eggs and a smiling round-stomached banker. Put together against a checked tablecloth, and cropped in the taking (Balish shot from $3\frac{1}{2}$ feet), they became an integrated, if surprising design.

 Shades of the men who broke the bank at Monte Carlo, or left the Buckhorn in a shambles, scrapped mementos were dusted off for a new kind of photo. Here light was even more subdued, called for f/2.8, 1/15.

Some still lifes are un-arranged. Deck your own windowsills—or a book case or table centerpiece—you very well may have a still life built-in to own home. Remember to check your exposure meter readings. Balish uses a Norwood meter in the usual incident way in order to get correct exposure for the subject's middle tones.



Modern visits the *Milwaukee Journal* darkroom

SOUP TO PRINT IN 10 MIN.



Fan-drying is practical technique worked out by Journal photographers who must get jobs out in a hurry.



Photographer Dick Bauer combines cigarette break with film processing in one of three Journal darkrooms.

"MILWAUKEE, WIS.—At 3:00 P. M. today cab driver John Smith apparently took a 'serv-ur-self' sign too seriously and drove directly through the plate glass window of a drugstore at A and B Streets, turning the interior into a shambles. Mr. Smith was unhurt, but. . ."

It never happened, but if it had, a Milwaukee Journal photographer could have shot a full roll of 35mm, raced back to the Journal darkroom and had a finished photograph ready for the engraver ten minutes later.

It isn't news that the news is being covered in many quarters these days by press photographers armed with nothing larger than a 35mm camera. It is news, though, when a staff uses it exclusively—and has for years.

The Milwaukee Journal pioneered in the application of 35mm techniques to press photography—and today each of its 18 staff photographers is equipped with the 35mm camera of his choice, a full complement of lenses—and a radio car.

Rugged, but right?

The switch to 35 wasn't accomplished overnight. The comparatively large and bulky press camera was for years the badge of the press—and not without reason. It's a rugged job, and a single photograph could be exposed, processed in a souped-up developer and printed in time to meet a close deadline.

However, the *Journal* feels that with 35 they are getting improved picture quality by having a greater selection of frames from which to choose, and at no sacrifice in speed. From the photographer's point of view, there is greater simplicity, portability, and the advantage of quickly interchangeable, high speed lenses.

The smaller negative does require special handling techniques which have been developed to a fine art at the *Journal* under the direction of Elmer Staab, head of the photographic department. They have attained a processing speed to equal, and in some instances surpass, that possible with larger, single negatives.

The Journal's is a do-it-yourself darkroom. Each photographer is responsible for processing his own film—even, in most cases, selecting the photos which will appear on the newspaper page.

S. O. P. for hot news

Here's how a photographer with a hot news picture in his camera can turn it into a dry print in ten minutes:

One minute for filling and loading exposed film into the 35mm developing tank.

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One and one-half minutes developing time in straight Eastman Kodak Dektol.

One minute in hypo.

One minute for washing in running water, treating with Photoflo and squeegeeing with a chamois.

Forty-five seconds for selecting frame and loading still-wet negative into the enlarger.

One and one-half minutes for printing, developing. Fifteen seconds in fixer.

One minute wash.

Two minutes on print dryer. Operation complete. Total elapsed time: 10 minutes. (Cont. on page 113)

FLASHGUN GUIDE

Since the number and variety of currently available flashguns-in prices from a few dollars to over thirty-can be confusing to a photographer in search of just the right one to suit both his needs and his pocketbook, Modern asked Norman Rothschild to compile this flashgun guide. Headings in large type indicate names of distributors. If your dealer can't supply the unit which interests you, send a stamped, selfaddressed envelope to Modern's Flash Editor, 33 W. 60 St., New York 23, N. Y., and we'll supply the distributor's address. Unless otherwise specified, all these units have solid reflector, shoe mount, battery capacitor and accept bayonet base flashbulbs.

Accura

Bouncemaster: Interchangeable cord; test light; tilting fan reflector; extension outlet; \$9.95 with case

De Luxe BC: Interchangeable cord; test light; fan reflector; extension outlet; \$8.95 with case

Penlite: Penlite batteries; PC cord; fan reflector; \$3.95

Aetna Optix

Spectra Model I: Fan reflector; test light; \$5.95

Spectra Model II: Fan reflector; test light; extension outlet; \$7.95

Agfa

Agfalux: PC cord; fan reflector; test light; \$10.95 with case

Allied Impex

Alpex De Luxe: Interchangeable cord; test light; extension outlet; fan reflector; \$9.95

Alpex Jewel: Interchangeable cord; test light; extension outlet; fan reflector; \$12.95

Alpex Jr.: Interchangeable cord; test light; ext. outlet; fan reflector; \$5.95

Amplex Photolamp

Elwis: Accepts baseless flashbulbs only; \$3.95

Praezisa: For baseless bulbs; \$3.95

Ansco

Universal Flash Unit JN206: PC and ASA cord; tilting reflector; extension outlet; \$7.95

Arel

PM Standard: PC cord; fan reflector; test light, extension outlet; accepts bayonet and pin-base bulbs; \$7.95 with case

Akarex

Akarex Flash Unit: Interchangeable cord; test light; fan reflector; extension outlet; \$12.95 with case

Argraph

BC #PFG-4: Detachable pin-type cord; fan reflector; \$6.50 with case

De Luxe BC #PFG-6: Detachable cord; fan reflector; extension outlet; \$7.95 with case

Penlight: Penlite batteries; detachable cord; fan reflector; \$3.95 with case

Argus

Clip-on Folding Flash Gun: Fan reflector; uses bayonet and pin-base bulbs; test light; flash contact through shoe, also interchangeable cords; \$9.95 Model 753 Flash: Uses C cells; flash contact through shoe plus ASA extension outlet; \$8.25

Bohm

Voigtlander BC: Test light; \$9.95

Saul Bower

BC Flash: Interchangeable cord; fan reflector; extension outlet; test light; \$7.95 with case

Fanflash: Penlite batteries; PC cord; fan reflector; \$3.95

Pocket Flash Unit: Uses C cells or BC operation; \$4.95 incl. bracket

Burleigh Brooks

Flashflex: Interchangeable cords; test light; mounts in bayonet filter mount of Rollei and similar cameras; extension outlet; shoe mount also available; \$15.95 Nikor Mercury Battery Flash: Mallory Mercury Battery; interchangeable cord; tilting reflector; \$6.95

Rolleiflash: PC cord; test light; mounts in bayonet filter mount of Rollei and similar cameras; extension outlet; shoe mount available; \$24.95 with case

Buttafarri

Ferrania Microlampo: Open flash button; test light; PC cord; \$9.95 with

Camera Optics

C. O. C. Universal: Interchangeable cord; test light; solid or fan reflector; extension outlet; also unit available for Polaroid; \$7.95

Caprod

Minicam BC Flash Unit: PC and ASA cord; test light; fan reflector; \$7.95 with case

Eastman Kodak

Generator Flasholder: No batteries, one turn of knob generates current to fire lamp; Type I, with Kodalite fittings, \$13.95; Type II, with shoe mount, \$14.95

Kodak BC Flasholder: PC and ASA cord; \$9.95

Kodalite Super M-40 Flasholder: Accepts bayonet or pin-base flashbulbs; \$7.50

Pocket Flasholder Type B-1: Penlite batteries; fits directly on cameras with Kodalite fittings such as Signet 30, 40, 50, 80, Pony II and IV; accepts bayonet or pin-base bulbs; \$7.95

Rotary Flasholder: Type I loads with 6 pin-base bulbs; \$10.95. Type II has PC or ASA cord plus shoe mount; . \$12.95

Exakta

Fanflash: Interchangeable cord; test light; fan reflector; extension outlet; \$7.95

Flashgun: Interchangeable cord; test light; extension outlet; \$15.50

FR

Minolta Baby BC Flash: Fits accessory bracket of Minolta 16 camera or conventional shoe accessory; fan reflector; \$5.95

Minolta Jr. BC Flash: PC and ASA cord; test light; fan reflector; \$8.50 with case

Graflex

Graflash BC: One model fits cameras with flash contact in accessory shoe; other model has PC and ASA cord; \$7.95

M-2 Graflash BC: Accepts bayonet and pin-base bulbs; shoe contact fits

(Continued on page 103)



was the half-buried boulder really in the way? Many times my wife and I had walked upward from the Vishniac country house near Carmel, N. Y., through the cleared path, to the hilltop. We merely skirted the boulder, or, in high spirits, climbed over it. For hundreds of years Indians, then early settlers and finally exurbanites, had probably followed the same path. Now, on a brutally hot and humid July afternoon, an astonishingly powerful, barrelchested 61-year-old doctor of medicine, zoology and Oriental art bent over a six-foot iron crowbar, levering the boulder. Every now and then a tiny sliver of space would appear between the edge of the boulder and the soil aroundit. Roman Vishniac would hold the crowbar at that angle to maintain the

space and look expectantly at his wife Edith, at my wife, or at me. We would quickly push in a small stone or whatever rock would fit in the space. Vishniac would then go on, lifting the boulder ever so slightly again. We continued placing stones, working deliberately, each marveling at the energy of the man, yet a bit apprehensive, since Vishniac was still recuperating from a serious automobile-accident injury and had not yet recovered his full strength.

We spent most of the afternoon with our thoughts on the boulder. Each was certain, save Vishniac, that when the sun went down, the boulder would still be there. Yet, by dinner time, it was not. Stone by stone, inch by inch, the boulder rose from its centuries-old bed, teetered on edge and finally toppled to rest a few yards away from the path. The way was now clear.

To each of us who helped Roman Vishniac that day,

the efforts might have seemed needless, the aim incomprehensible. A neighbor of Vishniac's who owned a tractor had refused even to discuss moving the boulder with his machine. Impossible. And we had thought so too.

For Vishniac, however, who had risked his life photographing the ghettos of Warsaw before Hitler destroyed them, it may not have been the simple act of clearing away a boulder from a path to the top of his hill. Perhaps it was symbolic of his own dedication. In place of boulder, read "indifference," "scientific dogma," "intolerance." Throw in a measure of "stupidity" and "cruelty." All as age-old, seemingly immovable, as the boulder. And here comes the adversary. Has he a crowbar in his hand? Not now. He uses a camera instead.

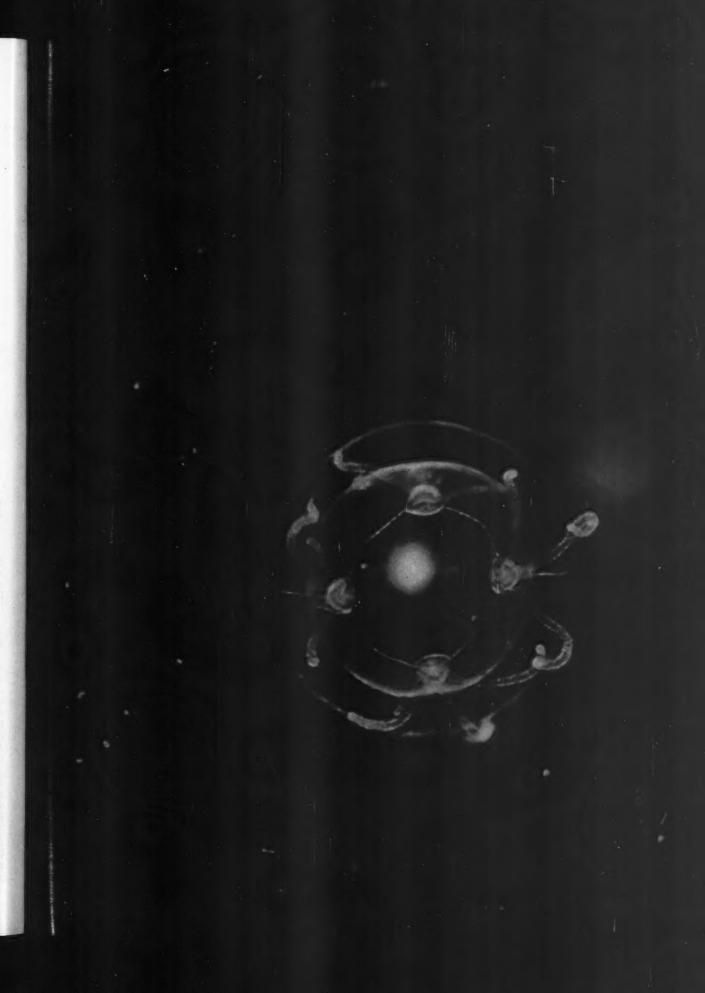
Roman Vishniac is a dedicated microbiologist, humanitarian and photographer. In a world of scientific conformity, Vishniac is the non-conformist. He is dedicated in an ancient manner quite unlike that of many latter-day scientists who, standing firmly on centuries of accumulated knowledge, only reach out a little to add to it.

Vishniac is quite interested in reaching out to add to already existing knowledge. But he often finds the footing underneath more than slightly shaky. Watch Vishniac. He photographs a Polychaete sea worm making a burrow underneath the sea floor. Most people are far too busy to watch, to study or to give the hardworking animal any thought. Worms are to be used on fishhooks or be gotten rid of in dogs or dissected in high school biology classes (where they are dead and preserved in formaldehyde). If you are slightly addled and insist on knowing the worm's more personal family life, you can look it up in books. They will tell you everything-how the worm digs its way in by one entrance and, making a U-shaped burrow, pops out the other. Wait a second. No, Vishniac, you can't be right. The worm cannot turn around in mid-burrow and come out the same entrance it went in. The books all say this worm doesn't turn. You have photographs of it? Impossible.

Vishniac, who often uses photography to prove his scientific findings, is a gadfly. You can't appreciate the disturbances he is capable of causing in scientific literature until you begin to grasp the vast quantities of biological and entomological tomes full of information which Vishniac is busily disputing. Often the authors

ROMAN VISHNIAC: PHOTOGRAPHIC REBEL WITH A SCIENTIFIC CAUSE

by HERBERT KEPPLER









Beneath our
feet, within
a waterdrop
Vishniac
photographs a
fanciful world
of strange
landscapes
with new
personalities



G.

H.

- A. Slime mold, 60X
 B. Desmid, 80-90X
 C. Fungi cultures, 14X
- 14X
 D. Cleavage of sea urchin egg, 120X
 E. Chemical reaction, 1000X
 F. Megalopa stage of crab, 65-70X
 G. Mushroom garden
 H. Cicada killer in flight.

Preceding page: Medusa jellyfish

ROMAN VISHNIAC (cont.)

of these works are not likely to be sympathetic to Vishniac's theories. And the authors are important scientists whose approval Vishniac must have before his findings are officially accepted.

"The rules of science are too often like some of the rules of photography," explains Vishniac. "Not long ago, no photograph could rightfully be handed in to a salon as a good example of art unless the corners were darkened and the winding road entered the picture from the lower left hand corner.

"There are scientists, too, who insist that the corners must be darkened. I am willing to listen if they produce valid arguments, but I cannot understand it when they state, 'because it is so,'"

Vishniac's troubles stem from the fact that his micro and macro work is quite unlike that of other scientists. Most study is carried on using slides made from dead organisms, stained so that they can be seen by transmitted light. Vishniac insists that you learn next to nothing by studying dead organisms. "Suppose you attempted to study anthropology by killing a human being, taking a slice of him, staining it a different color and then placing it under a microscope." Of the method used by those researchers who do examine living creatures under a microscope—corralling them under a cover glass—Vishniac asks, "How normally would you act if you had a heavy piece of glass placed on top of you?"

Instead, the world of Roman Vishniac is populated by living three-dimensional animals and plants carrying on their everyday activities in their natural environment. "Look at the lovely medusa," says Vishniac (page 79). "She has just left the polyp and for the first time she is swimming out in the world by herself. She is so happy. With her eyes, (the small bulbs at the edges) she looks around her, enjoying her swim. Isn't she beautiful?" One must agree with Vishniac. And curiously, the medusa leaves the polyp only between 3:30 and 4:15 A. M., never at any other time. If you're not up at this hour, you simply never see it.

Anyone who has seen a dead medusa jellyfish washed up on a beach would immediately agree that a live one in its natural habitat is indeed a jellyfish of another color.

Vishniac's efforts to study the tiny creatures of the land and sea in their natural surroundings has imposed fantastic demands on photographic and microscopic equipment. Nothing exists for such work. High-powered microscopes are designed for inspecting inanimate objects in extremely narrow planes of depth. Manufacturers furnish substage lights which reflect illumination on a mirror beneath the subject. The image seen through the lens is virtually a silhouette. Evenness of illumination is held to be essential to good microscopy. But Vishniac lights his subjects from above. He cross lights, using one or more directional lamps just as a studio portrait photographer would. "What good is even illumination?" he asks. "What interest, what detail would you achieve if you photographed a human being with flat, even light? You need cross lighting to really see your subject, and to bring out the detail." He has at his disposal a number of woefully inadequate microscope lights which he uses with great difficulty. They are barely strong enough for photographic use. (Vishniac uses Kodachrome). The magnification of his stills and movies is so great that he must lengthen the exposure considerably to compensate for light loss—and he cannot ask a paramecium, amoeba, or medusa to hold still while he focuses and shoots.

When Vishniac questions optical firms who could build him the proper lighting instruments, their officials shrug their shoulders. "Yes, we could build exactly what you need, but we can't make just one. Who else would buy them if we produced them?" they ask. And so Vishniac improvises. He plans movie footage of a tiny sea crustacean. Carefully, he sucks the minute animal up with a fine eye dropper and places it on a glass slide which has been specially prepared with a swimming pool of wax that holds a few drops of water. Now Vishniac quickly positions the slide on the vertical stand he uses when shooting with his 16mm Arriflex camera. The Arriflex is fitted with Leitz lenses and a long extension tube for extreme close-ups. Vishniac illuminates the animal by throwing the light from a microscope lamp directly onto the slide. But the lens of the Arriflex is in the way. The setup doesn't work. He redirects the light onto a tiny hand mirror propped near the slide. The mirror reflects the light across the animal in the pool. He focuses the Arriflex (which has through-thelens focusing). He has removed the ground glass and replaced it with a clear glass because the grain of the ground glass makes accurate focusing at such magnifications much too difficult. Instead Vishniac has trained his eye and his hand to focus on the plane of the clear glass. He sets the aperture. He uses no exposure meter because no practical one has yet been invented for such work. Experience is his only meter. Mounted on a stepstool so that he can peer down into the finder, Vishniac maneuvers with both hands the controls of the stage on which the slide rests, attempting to keep the animal in the picture frame and in focus. Remember, the animal is quite free to swim in all directions and even right out of the picture. The depth of field is only thousandths of an inch. How does he keep the image sharp? "You must be able to think like the animal and anticipate his movements," explains Vishniac. As the animal moves, the lighting must also be changed. Vishniac operates the Arriflex with a foot-switch.

Vishniac's ability to identify with his subjects certainly is responsible in a large degree for his success with them. The tiny creatures are his friends. Not since he watched with dismay the death of a tiny fish he caught when he was eight years old has he deliberately allowed an animal of any size to die. In order to study his minute world, he tries to enter into it. He will spend entire nights with eye to microscope—watching, observing, learning. His compassion for his subjects is remarkable. Every one, tiny insect or copepod, jellyfish or baby squid, is photographed and then returned to the meadow, pond, or ocean cove from which it came. At the Woods Hole Oceanographic Institute on Cape Cod, Massachusetts, where he spends most of his







Jimny Sava



VISHNIAC TOOK HONEST PORTRAITS BUT HIS SIT-TERS WANTED GLAMOUR.

Vishniac found he had talent as a portrait photographer. The carefully posed portrait of violinist Bronislaw Huberman was typical of his pre-U. S. Berlin period. Arriving in New York in 1940, penniless, Vishniac began taking portraits for a living. Unfortunately, he had a talent for portraying people as they really looked.

An artist such as Chagall might admire
his work; so would writer Aldonov or pantomimist Jimmy Savo. But the average Vishniac client was infuriated by the portraits, which were far too truthful. Many of his subjects marched indignantly out of his studio-apartment still clutching the ten-dallar bill which was his fee at the time. Still, Vishniac was able to eke out a living for his family. This period of his work came to an end when he became successful selling his scientific pictures, and portrait clients stopped coming because someone had made off with the bronze plaque which had announced his profession outside his apartment-house.



Mark Aldeney

Brenislaw Huberman



ROMAN VISHNIAC (cont.)

summers in work and research, his figure can be seen late at night sneaking past doors of the students' labs, taking their refuse pails with still live specimens ("used material") down to the dock and releasing the forgotten contents back into the sea.

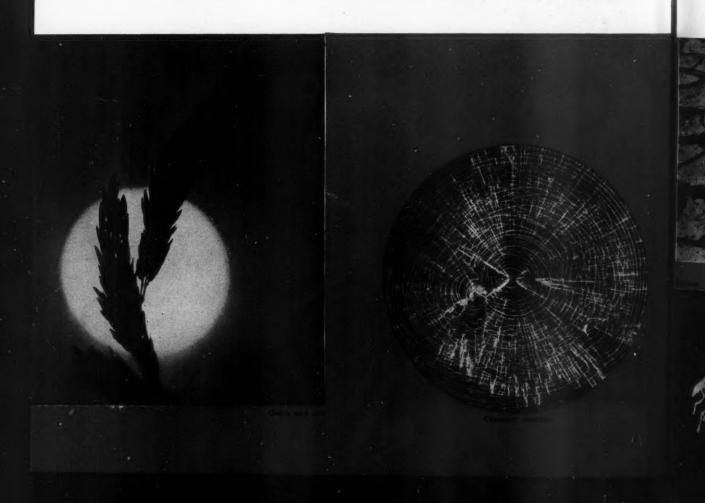
In their turn the animals seem positively to sense his concern and love. Marine creatures considered impossible to keep in captivity thrive in containers in the refrigerator of his Manhattan apartment year-in-year-out until returned to their homes, of course. At any one time his apartment-lab will have some fifty different jars and dishes stacked about, all populated with his miniscule friends, alive and content.

Last summer, near the Oceanographic Institute, Vishniac, my wife and I came across a wasp struggling to walk across the main street of Woods Hole. It could only be minutes before a car would come along and crush the wasp. Vishniac quickly bent down, offered the wasp an outstretched finger and gently carried the insect, which unhesitatingly climbed aboard, to the grass on the far side of the road.

"Roman, why didn't the wasp sting you?" I asked.
"Ah, it knew I was a past president of the New York
Entomological Society," was the reply.

Equipment is Vishniac's ever-troublesome problem. His 10 x 12-ft. apartment-lab, with its dozen or so microscopes, various vertical camera platforms and light-collecting mirrors, resembles the interior of a wellendowed college or medical lab. But endowed it is not. Every item has been purchased by the one man.

Leaving the more scientific equipment, we note that most of his photographic work today is in 16mm motion pictures or in 35mm and 21/4 x 21/4 stills. For movies, in addition to the Arriflex, he has a Kodak Cine-Special and a Bolex H-16. For 35mm stills he uses a Contaflex I outdoors for general and close-up work, and a Miranda or a Leica for photomicroscopy. The Contaflex, with its leaf shutter that can easily be synced at all speeds, is a logical choice. Most of Vishniac's outdoor close-up shots are made with electronic flash. Sufficient light for Kodachrome rarely penetrates into small and earthbound mushroom kingdoms or to the approaches of ant colonies, but with the slow speed necessary to sync a focal-plane shutter to electronic flash, Vishniac would pick up secondary images caused by existing light. Although for close-ups he prefers cameras that use extension tubes, the Contaflex has a non-interchangeable lens. So he uses close-up lenses. However, some time ago he felt he needed greater magnification. In checking the front cell focusing element of the Contaflex lens he noticed that the close focus was stopped by a tiny screw. He removed it and discovered that the front cell could be screwed out even further for closer work-almost for 1:1 copying. Although he is quite satisfied with the me-



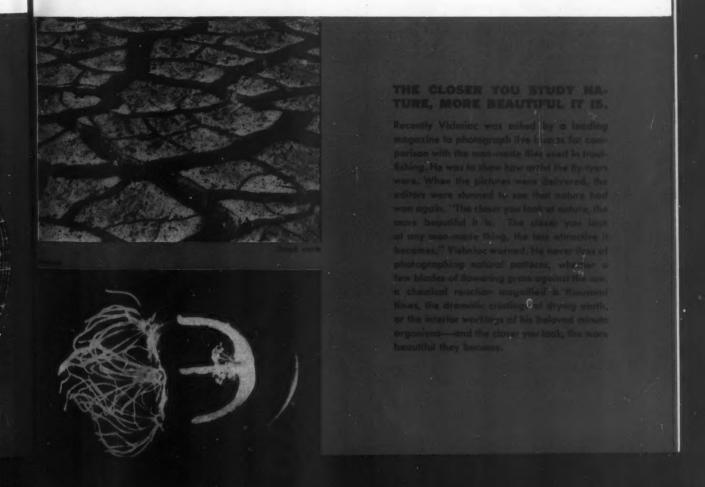
chanics of the Contaflex, he is unhappy about the short (45mm) focal length of the lens, since it forces him to get too close to his subjects. He would rather have a 35mm camera with a 90mm or even longer lens so that he could make close-ups from a good distance and thereby avoid frightening and diminutive creatures he photographs. Indoors he prefers the single-lens eye-level reflex Miranda, even though it has a focal-plane shutter. With the Miranda mounted atop a microscope he can focus and view directly through the prism. The shutter, he explains, is relatively quiet and vibrationless. The interchangeable lens mount permits him to use the Miranda with his collection of Leica-threaded lenses.

He also uses a Leica for photomicrography. A Leitz beam-splitter directs a small amount of the light from the microscope image to an eyepiece through which the image can be focused. Vishniac has never understood why the designers of the beam-splitter didn't arrange to show the actual picture-area being covered. Rather than the M3 or M2 cameras, Vishniac uses the older, lighter Leica bodies, which put less strain on his microscopes.

Vishniac would prefer to shoot all his pictures on 35mm Kodachrome, but he also uses Ektachrome because many clients insist that $2\frac{1}{4} \times 2\frac{1}{4}$ is the smallest workable size. He uses two 21/4 x 21/4 single-lens reflexes, a Hasselblad 1000 and, more recently, an Optika.

Since both have focal-plane shutters, he finds them difficult outdoors with electronic flash.

His lens collection is enormous. Since many of his living subjects prove to be uncooperative "sitters" if taken indoors to be photographed through a microscope, he must, in effect, make microscopes of his cameras and go out to where the subjects live. One of Vishniac's favorite low-powered binocular microscopes has 60X magnification. By using a Zeiss Microtar 10mm lens with suitable extension tubes on a Miranda or Leica, Vishniac can achieve nearly the same magnification, 50X, without the microscope. He can go even further, using a 1.5mm microscopic lenses. Such lenses are not calibrated in f/stops but in diameter of opening instead. You calculate exposure by experiment and mathematical formula. Vishniac has also used lenses from 8mm movie cameras for his close work. He warns anyone planning to try such standard optics to reverse them before making any shots of greater than 1:1 magnification. By shooting so close, you are actually reversing the role of the lens-the lens-to-subject distance is shorter than the lens-to-film distance. Most standard lenses weren't made for such optical uses and will not deliver maximum resolution unless they are reversed-so that the rear element becomes the front one and the front element is therefore closest to the film plane. Symmetrical lenses need not be reversed.



ROMAN VISHNIAC (cont.)

On the opposite end of the focal length scale, when he must bring distant animals closer, Vishniac has found the Dr. Weth Convertible Telestigmar lens quite valuable in the 315mm focal length. Mounted on his

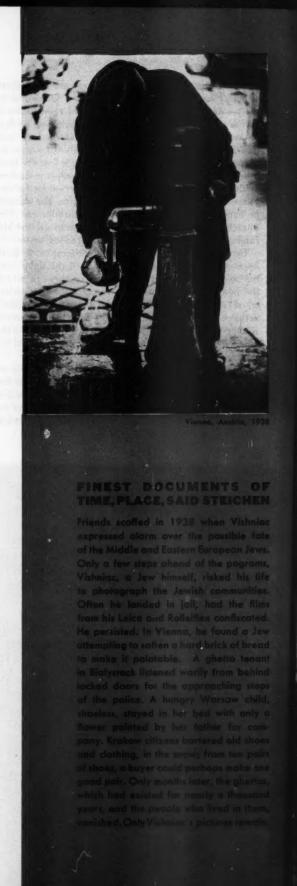
Arriflex, it is a formidable weapon.

Lighting problems are far from solved for our naturalist. His electronic flash units, which of course must be light and easily portable, are Mighty-Lights using 240-volt dry batteries. For close-ups he uses a close-up electronic flash ring which fits the front of the Contaflex lens. At first he found its light too even and flat. He experimented, masking off the light from part of the rim with black tape. The light thus became more directional—but he is still unsatisfied. He would like a tiny electronic flash tube which emits a very concentrated, narrow beam of light at short flash-to-subject distances. It doesn't exist.

For photomicroscopy and close-up movies Vishniac dreams of owning Xenon arc lamps cool enough not to burn up his subjects, continuous repeating electronic flash units capable of being synced to the shutters of his movie cameras, bright directional microscope lamps which will emit an even more brilliant flash directly through the same bulb and at the same angle as the focusing light. None of these things is impossible. All can be built. Some already do exist. Sometimes Vishniac is fortunate enough to be able to borrow some of the equipment he needs from his good friend, electronic flash inventor Dr. Harold Edgerton. In such cases, he has the loan of the equipment for only a week or so since Edgerton works for governmental agencies and the equipment is destined for one or another of them. "Perhaps I should join the Navy," Vishniac remarked one afternoon after a coveted piece of Edgerton electronic equipment was carted away on route to a naval installation.

Nothing stands between Vishniac and the equipment he needs but money. But Vishniac must buy everything with the sums he can earn making pictures. His work can be divided roughly into three categories, the first being work that he really prefers not to do but which brings in money—making films for TV commercials proving that so and so's chemicals do great things that other manufacturers' won't, and research for advertising agencies on like material. Second, work he likes to do but which he feels is not creative research—illustrating articles for popular magazines and educational films. Lastly, pure research, which he likes best and for which he gets no money at all. Obviously the first and the second must pay for the third.

Vishniac's financial problems are compounded by his character. He expects everyone to be as honest as he is. He falls prey to all sorts of optical con men bent on selling him equipment which, when he gets it home, does not work properly. Usually more hurt than angry, Vishniac feels it is his mistake in allowing himself to be bilked and he seldom protests loudly enough. To the fields of advertising and TV, Vishniac's ethics and morality are strangers. He takes people at their word and too rarely asks for written (Continued on page 116)







Krokow, Polensi 10 to



HE SAID HOLD IT!

THERE WERE more than three hundred photographers' galleries in New York City alone by 1870. Brady was still there, though he was soon to close his establishment on Broadway in order to concentrate on his Washington practice; Gurney's widely known gallery flourished, and that of Frederick, his former partner; but the three most elegant galleries in New York operating in the seventies were those of Napoleon Sarony, William Kurtz, and Jose Maria Mora.

All three-like Falk, who opened his gallery a decade later-specialized in photographing celebrated actors and actresses. Their pictures of the glamorous and beautiful in turn attracted society women and firstnighters to their studios. A considerable profit was enjoyed by all galleries in the sale of cabinet-size (4-by-5½-inch) and carte-de-visite (3¾-by-2¼-inch) portraits of the nation's prominent theatrical personalities, dressed in the costumes of their most popular roles. Each gallery accumulated thousands of negatives and sold innumerable pictures through the theater, hotels, the mail, and various other channels, paying a small royalty, if any, to the pictured actor or actress. The photographs were considered such good advertising by management and performer that a commission for posing was rarely exacted.

Lighting, backgrounds and personality

William Kurtz, born in Germany in 1834, was an artist-adventurer who had served his time as a boy with the German army and had fought with the English army during the Crimean War and with the Union Army in America's Civil War. In London he had been trained as a lithographic artist and had also taught art. Upon opening his New York gallery soon after the close of the Civil War, he introduced a method of lighting, modeling the subject's entire face through an arrangement of tin-foil reflectors, which became known as "Rembrandt" photography. A sensitive portrait photographer, Kurtz dispensed with elaborate or painted backgrounds, eliminated incongruous costumes, and used contrasty, simple backgrounds in order to secure as wide a range of tonality as possible with the wetcollodion process. The subtle Rembrandt photograph became enormously respected and popular among competent photographers, who were able to control and capture the nuances of lighting and modeling demanded by this style. Kurtz received many prizes for portrait photography, including the highest award of the International Exhibition, Vienna, in 1873.

Jose Maria Mora, born in Cuba in 1849, studied art and photography in Madrid, but received two years' additional training in the intricacies of the camera from Sarony before he opened his own gallery in 1870. Immediately he prospered, and became famous for his pictures of renowned actresses whom he posed with rich accessories in front of painted scenic backgrounds. Soon he had hundreds of them standing one behind another ready to be used for any kind of effect from drawing room to log cabin, from desert to mountain top, with appropriate props to complete the picture.

L. W. Seavey introduced painted backgrounds for photographers; these quickly became standarized as accessories for the trade, along with automatic head supports, retouching machines, false pianos, balustrades, stairs, and chairs.

Photography's most famous (Continued on page 104)

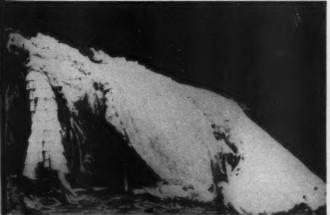
Napoleon Sarony chose hussar's uniform to epitomize his personality for study of him by an assistant.





Oscar Wilde languishes against an ornate backdrop in his favorite costume of knee breeches for his Sarony portrait.

PHOTOS ABOVE, BELOW, TOP RIGHT COURTESY GEORGE EASTMAN HOUSE



Sarah Bernhardt, above, gently coughs as the dying Camille in a role typical of her first American tour. E. H. Sothern, right, in role Lincoln saw the night he was shot.

Napoleon Sarony, furious little giant of the 19th Century, photographed like an angel, painted like a hack, dictated to actor and pugilist. Here is his story from "The Picture History of Photography," a new book by Peter Pollack.



The daring Adah Isaacs Menken displays some of the attributes that made audiences roar.



DISCOVERY no. 40

WILLIAM J. MAUND JR.

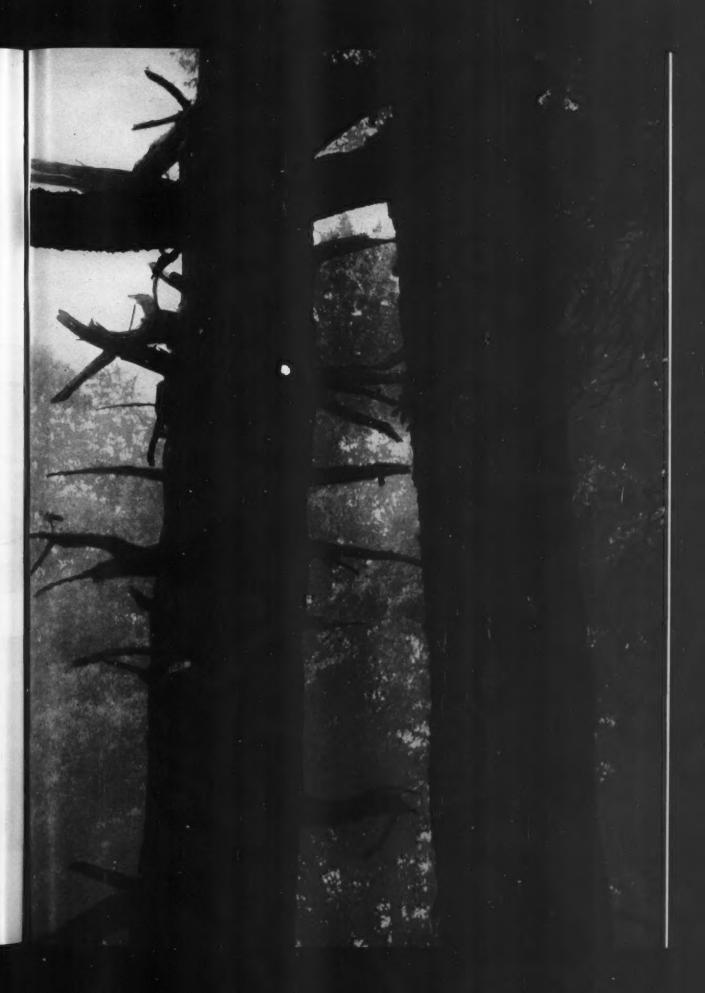
"CURIOSITY," writes William Maund Jr., "more than anything else was responsible for my initial interest in picture taking." When still a high school student, Maund added photography to an extensive list of hobbies, shooting teachers and classmates with a secondhand folding camera for the school paper. Fortunately, his work caught the attention of a local Philadelphia professional photographer. In response to this contact Maund's interest flourished and his technique improved. He replaced the folding camera with a 4 x 5 Speed Graphic, and began to think in terms of the creative potential of the medium.

In May, 1951, while a senior in high school, Maund got a job in the photography department of the *Philadelphia Inquirer*. A year later he joined the armed forces, and spent the next four years working for the Air Photographic and Charting Service in the United States and in Asia. During this period Maund's personal philosophy began to develop. "Observation and reflection on the experiences of travel and maturity solidified certain concepts for the first time." The camera became his means of expressing these concepts.

In 1956 William Maund returned to the United States "fortified not only with enthusiasm and a new outlook, but also by a recently acquired Japanese wife." Shortly after he was discharged from the service, he enrolled at the California School of Fine Arts in San Francisco to study photography, creative arts, and the humanities.

William Maund selects his subjects carefully, photographs

Maund prefers to work at distance, singles out designs with 250mm f/4 Sonnar lens on Hasselblad 1000F. Silhouette, left, is no darkroom trick. Sun was behind palm, just out of picture, f/11, 1/25 sec. Right, California fog, f/8, both shots 1/25 sec. on Panatomie-X.



DISCOVERY no. 40



Morning fog near the Golden Gate Bridge. 4 x 5 Linhof Technika III, 360mm Tele-Xenar, Royal-X Pan, 1/100, f/11.

them to express certain definite ideas about the nature of the world in which we live. He is not a journalist; he is not interested in design for the sake of design. He is neither a social documentarian nor a psychologist. To him photography is "an attempt to synthesize, not categorize. I want to communicate my experiences of harmony, and to restate these experiences so that those disciplined in other areas may also become aware and sensitive to the basic simplicity of Man and Universe."

Although Maund commands an impressive array of equipment (4 x 5 Linhof with six lenses, Hasselblad with four, a Nikon with three, and a Rolleiflex) and is an excellent technician, he believes these considerations are of secondary importance. "Technique is no more than a tool. Far more important is perception, which in my case has been stimulated by domestic and foreign travel, studies in the humanities and the arts, the love of my family, and the enjoyment of life."—P. c.

Maund is master of varied subjects, many techniques in both 35mm and 4 x 5. Above right: roomlight portrait made on Tri-X with Nikon S-2, 50mm, f/1.4 Nikkor, f/2.8, 1/30. Center: daylight through skylight was illumination for Tri-X, this time in Hasselblad, 135mm Sonnar, 1/25, f/5.6. Bottom: 3 x 4 inch area of oak tree root study by daylight, 4 x 5 Linhof Technika III, 150mm Schneider Xenar, Panatomic-X, 1/10 sec., f/11. Far right: 90mm Schneider Angulon wide-angle on Linhof gives vast height to landscape, 1/10, f/11 on Panatomie-X.



Maund's photographs of people and nature express a single idea: the harmony and basic simplicity of Man and Universe.



MONTHLY CONTEST

HIGH CONTRAST and imaginative selection of angle are apparent in all five pictures this month. A wide-angle lens gave the Chinese scene the breadth necessary for good design. The low angle on the portrait of the nun draws all attention to the reserve and awareness in her face. Shooting the children at their own level against a dark background captures their happy camaraderie, and a snow scene that might have been rather ordinary is made interesting by shooting down, giving it new perspective and design. The clouds of dust behind the carriage contrast with the dark mass of horses in the foreground, resulting in a fairy tale quality. Freshness

of viewpoint and correct use of available techniques to make the creative idea a reality are evident in each print.

Anyone may enter any number of black-and-white prints in Modern's "Monthly Contest." Pictures must be 4 x 5 or larger, with the exception of Polaroid prints, which may be submitted in original size. Your name, address, all technical data must appear on the back of each print. No entry blanks required. Please enclose stamped (first-class postage), self-addressed envelope if you want entries returned. All entries considered for use elsewhere in magazine. Send to: Columns Editor, Modern Photography, 33 W. 60, N. Y. 23, N. Y.



WIDE-ANGLE lens (35mm) captured design of man pushing cart against background of Chinese symbols. Eugene Anthony, Oakland, Calif., made shot in Kowloon, China. Nikon, Tri-X, f/16, 1/125. Third Prize.



MODERN PHOTOGRAPHY'S

MONTHLY CONTEST

FIRST PRIZE \$25

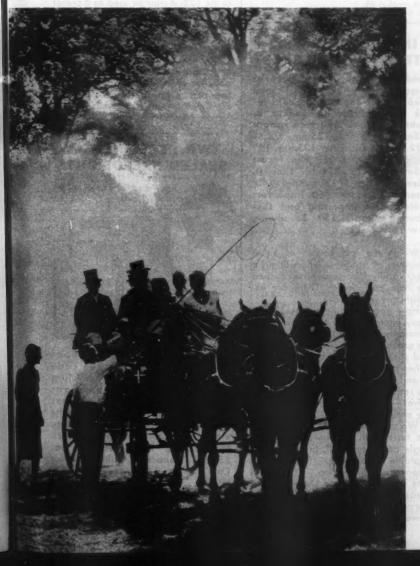
SECOND PRIZE \$15

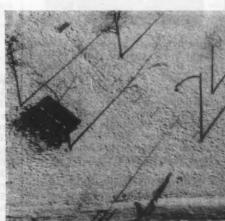
THIRD PRIZES \$10

LOW ANGLE reveals personality of nun and makes excellent use of strong contrast. Robert F. Burgess, APO, New York, made portrait in late afternoon sun with miniature Speed Graphic, 1/25 at f/5.6 on Verichrome Pan. Third Prize.



EXUBERANCE of childhood is exemplified by these laughing girls. A dark canvas chair made an uncluttered background for this double portrait. Len Weiss of Jamaica, N. Y., used a Ricohflex, f/3.5, 1/100 sec. Verichrome film. Second Prize.





TEXTURE of snow and the design of dark shadows on a light background resulted from the high shooting angle which J. Godfrey of New York, N. Y., chose. Nikon, Plus-X, f/16, 1/125 second. Third Prize.

BACK LIGHTING outlines horses and creates overall mood of time out of place. The old and new are combined in this scene of festival preparations by Jurgen Heinemann of Onnabruck, Germany. Exakta, Travenar lens, 1/8, 1/50, Perutz Perpantic. First Prize.

MODERN

SAMOCA: SENSITIVE METER, QUIET SHUTTER



Specifications: Samoca LE 35mm rangefinder camera. Lens: 4-element D. Ezumar 50mm f/2.8. Shutter speeds: 1 to 1/300 sec. and B. Other features: Double throw rapid film advance lever, automatic shutter cocking, built-in dual range light meter and single range-viewfinder. Price: \$49.95. Importer: Scopus Brockway, 404 Fourth Ave., New York 16, N. Y.

As one of those people who hesitates to trust built-in exposure meters—for no other apparent reason than a sentimental attachment to an old, badly scarred accessory meter—I approached the Samoca Model LE 35mm camera with something less than complete confidence.

But since MODERN tests are conducted on an empirical basis, I used only the meter on the camera—and glad I did, too. First, here we have a camera selling for \$49.95 that has a built-in meter which works accurately even under dim light conditions. Second, every exposure was correct.

So much for the meter. What about the camera itself? Overall reaction: A neat picture taking instrument.

Specific reactions: The lens is satisfyingly sharp at f/2.8, the maximum opening. But, of course, like most fast lenses, it shows some softness at the corners when wide open. However, at f/4 sharpness improves considerably, with the best aperture range from f/5.6 to f/8.

The parallax-corrected, bright frame viewfinder shows a clear image. The corners of the frame can be seen

even with glasses. While the bright spot rangefinder is reasonably easy to use in normal light, it's not quite as efficient under low light levels.

I found the double throw film advance lever a bit time consuming. On the other hand, the shutter is so quiet that there were times we weren't quite sure that it had opened and closed properly (particularly in traffic-filled streets, or amidst the hubbub of MOD-ERN's editorial office). But it did, every time.—M.A.M.

INEXPENSIVE W.A., TELE FOR REFLEXES

Specifications: Preset Accurar 35mm wide-angle and 135mm telephoto for 35mm single-lens reflex cameras having Exakta or Praktina mounts. Aperture range: 135mm, f/2.8-f/22; 35mm, f/2.5-f/22. Angle of view: 135mm, 19° (diagonal); 35mm, 64°. Min. focus: 135mm, 6 ft.; 35mm, 1.65 ft. Price: 135mm f/2.8, under \$40; 35mm f/2.5, under \$50. Importer: Photographic Importing and Distributing Corp., 150 Broadway, New York, N. Y.

Within the last couple of years a number of Japanese lenses fitting a great variety of cameras have reached the American market. These are astonishingly inexpensive.

How good are these lenses? By many photographers they have been summarily dismissed, apparently on the grounds that no lens of such speed and such price could be much good. Other photographers are using them—and have been quite satisfied with the results. We decided to see for ourselves—and forthwith procured two of the number available.

We were amazed at the results of the tests. Both telephoto and wide-angle performed well, producing acceptable 11 x 14 full frame prints when used wide open. The 35mm lens did vignette, and showed a decrease in sharpness at the corners of the negative, when used at f/2.5. This, however, is true of many wide-angle

objectives which sell for more money.

An interesting point about the wideangle: unlike most wide-angle lenses for single-lens reflex cameras that we know of, this is a true wide-angle lens, not an inverted telephoto or retrofocus type. In terms of actual, practical use, a true wide-angle is lighter in weight, smaller and less conspicuous than a retrofocus lens of the same maximum aperture and focal length.

There is one structural disadvantage to the 135: it must be used as a preset lens. There is no aperture indicator other than the preset stop.

Certainly we won't maintain that these lenses perform as well as the really excellent—and costly—wide-angle and telephoto objectives available. However, if cost is any object in considering which accessory lens to buy, it will be well worth your while to consider these.—P.C.

TWO PERMANENTLY SEALED SPEEDLIGHTS



Specifications: Ultrablitz Super Comet. Operation: Nickel cadmium batteries, AC. Recycling time: 10 sec. Flash duration: 1/2000 sec. Other features: Sealed for life, high impact plastic construction, overnight recharging, elastic snap cords on power pack for carrying flash head. Price: \$54.95. Importer: Allied Impex Corp., 17 W. 17 St., New York 11, N. Y.

Specifications: Ultrablitz Meteor. Operation: Nickel cadmium batteries, completely transistorized

TESTS

the newest cameras the latest films

circuit. Recycling time: 9 sec. Flash duration: 1/1300 sec. at full power, 1/2500 sec. at half power. Other features: High impact plastic construction, receptacle for extension flash, dual setting on reflector for normal and wide-angle lenses, elastic snap cords on power pack for carrying flash head. Price: \$99.50. Importer: Allied Impex Corp., 17 W. 17 St., New York 11,

The Super Comet, the smaller of two new Ultrablitz permanently sealed units using life-time nickel cadmium batteries, evoked a great response from female members of the MODERN staff. Comments ranged from "how cute" to "I could carry it in my purse." Perhaps its mere 21/2 lbs. and 4 x 51/2 x 1 1/2 dimensions rate the female descriptions, but despite its smallness the Comet can do a fair-sized job. Our tests showed a guide number of 30 for Kodachrome and good light distribution with the normal lens on our 35mm camera. Recycling time is about 10 sec. A vibrator-type unit, the Super Comet can also be operated on AC power and recharged overnight via an

The Meteor, a completely transistorized flash, also using nickel cadmium batteries, is somewhat larger and heavier than the Comet. Permanently sealed, it weighs in at 41/2 lbs., not enough to be uncomfortable even after hours of picture taking. We preferred a guide number of about 60 for Kodachrome at full power with the Meteor. Our tests coincided exactly with the manufacturer's recommendationsunusual with electronic flash units since rarely are two alike. Flash duration at full power is about 1/1300 sec.

ordinary ironing cord. The plastic box appears rugged enough to stand a certain amount of abuse, too.

The unit may also be operated at half power for a flash duration of 1/2500 sec. A color-coded three position switch permits battery or AC operation. Under normal conditions we found that leaving the battery switch on for extended periods did no damage to the cells. However, several hours on battery without flashing the unit requires 60 hours recharging to return unit to normal operation. The Meteor may be fully charged overnight under normal conditions. When fully charged, recycling time for the Meteor is about 9 sec. When half charged, recycling time is approximately 20 sec.

The angle of the light beam may be adjusted for a 50 or 80° spread, depending on whether you shoot with a normal or wide-angle lens. Tests indicated even light distribution at both settings.

Incidentally, elastic cords on both units permit carrying the flash head snugly against the power supply when not shooting .- M.A.M.

THROUGH-LENS VIEW-ING WITH 8MM ZOOM



Specifications: Bolex Pan Cinor 30DV zoom lens for 8mm. Focal length: Continuously variable from 10 to 30mm. Viewing: Through the lens. Focusing: From 21/2 ft. to infinity. Mount: D mount. Price: \$189.50. Importer: Paillard Inc., 100 Sixth Ave., New York 13, N. Y.

The Bolex Pan Cinor 30DV is the first zoom lens for 8mm to offer direct through-the-lens viewing-without parallax. The finder eyepiece extension is fixed to the lens at a position in front of the diaphragm-which means that you see a bright image at all apertures, and the 30DV image is definitely bright.

The direct viewing is extremely helpful in shooting ultra close-upsand more important, can be used with interchangeable lens cameras to convert to through-the-lens viewing.

Zoom lenses have often presented

a problem when loading the camera. Often, if the finder eyepiece extension is long enough for comfortable viewing, the lens blocks the film chamber. The 30DV eyepiece extension folds back out of the way for loading, leaving plenty of room to open the film chamber cover or door. And, you don't have to sight from the side of the camera either. The finder is long enough to use in normal shooting position.

The zooming action works so smoothly that upending the lens is enough to start it slowly moving from

wide-angle to normal.

How good is the 30DY? In actual shooting tests, the lens proved to give as good a performance as most single focal length lenses. Sharpness in the center at maximum aperture was good, and at about f/3.5 the image was sharp from corner to corner.-M.A.M.

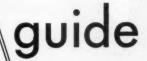
LOOK WHAT HAPPENED TO THE BROWNIE 8MM



Specifications: Brownie Scopesight 8mm movie camera. Lens: 13mm f/1.9. Film: Double-8 Kodachrome or black-and-white. Exposure: Semi-automatic exposure system has photocell built into viewfinder and coupled to the diaphragm of the lens. FPS: 16. Viewfinder: Optical with etched fields for normal, wide-angle and tele lenses. Other features: Kodadur covering, auto-

(Continued on page 108)

the serious movie-maker's







and Ektar Lenses-Here are 16mm cameras and rare-element-glass lenses to keep pace with the most imaginative shooting script. The "K-100" roll loads 100 feet of film. Wind the motor once and you can shoot flowing sequences 40 feet long. Or attach electric motor drive by means of auxiliary drive shaft for continuous operation. Op

tional hand crank permits professional fades, dissolves, and multiple exposures. Choice of filming speeds from 16 to 64 frames per second plus single frame. At any speed, precision mechanisms adjust to

any speed, precision mechanisms adjust to maintain maximum steadiness. Cine-Kodak K-100 Turret Camera with 25mm f/1.9 Ektar Lens, \$337. Turret can be equipped with any three of seven Cine Ektar Lenses (in Type C mounts) and

matching viewfinders.
Single-lens K-100 Camera with 25mm f/1.9 Ektar Lens, \$299; accepts directly all Ektar Lenses in Type C mounts.



Magazine Camera-Loads in only 3 seconds using pre-threaded 16mm magazines.

onds using pre-threaded 16mm magazines. Lets you switch film at any time.

Royal Camera offers 16-, 24-, 64-framesper-second film speeds, and single-frame exposure for animation and time-lapse sequences. Zoom-type optical finder adjusts for Ektar Lenses from 15mm to 152mm.

With adapter, it accepts any of seven Kodak Cine Ektar Lenses. With 25mm f/1.9 Ektar Lens, \$198.

Add the realism of sound to your movies—

Do it professionally with a Kodascope Pageant Sound Projector, Magnetic-Opti-cal, Model MK4. Just have magnetic strip-

cal, Model MK4. Just have magnetic strip-ing added to your old or new 16mm movies. (Kodak Sonotrack Coating is only 2½ cents a foot.) Then record your commen-tary and music as you project your films. Erase, re-record until you are satisfied. MK4 also plays optical sound tracks. Never needs oiling. With microphone, 8-inch speaker, 10-watt amplifier, f/1.6 lens, 750-watt lamp—\$850 in a single case.





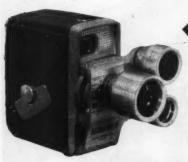
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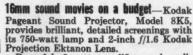


Versatile magazine-load Medallion 8

Cameras Kodak Medallion 8 Movie Camcameras—Kodak Medallion 8 Movie Cameras load in 3 seconds. Exposure dial automatically sets lens. No focusing necessary. Choice of four filming speeds from 16 through 48 fps plus single frame.

Turret model is lens-equipped for normal, wide-angle, and telephoto scenes. Optical viewfinder shows all three fields. \$159.50. Single-lens model, \$106.50.





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Prices are list, include Federal tax where appli-cable, and are subject to change without notice.





Kodak

Rochester 4, N. Y.

Technical Assistance By Morris H. Jaffe

How to Shoot a . . .

BOATING MOVIE

A DAY ON THE WATER—whether in a skiff or a schooner—means an opportunity to film motion pictures filled with extravagant color, exciting movement and startling images. Once you look through the viewfinder of your camera you'll realize that the sea's economy of scene really hides a thousand wonderful film making ideas. And there's no secret to finding them, just about all you have to do is start shooting.

Turn a youngster, or an adult for that matter, loose on a lake, river or ocean in almost any kind of boat and

the script grows by itself.

Making a movie from the deck of an outboard cruiser or a schooner under full sail doesn't require radical departure from regular film making techniques—just a few minor alterations and safeguards. For one thing you won't find a tripod of much use aboard a small boat, even in the calmest waters. Motor boats are prone to vibrate and a tripod would only conduct the vibration to the camera.

Hand-held shooting is your best approach. But instead of grasping the camera firmly, try holding it lightly so that your body absorbs most of the vibration. A wrist strap threaded to the tripod mount thread of your camera and placed securely around your wrist is good insurance against accidentally dropping the camera on the deck or even worse—overboard.

Naturally, once you get outside the calm waters of the harbor the horizon won't always stay just where you want it. Shooting with a wide-angle lens helps minimize the effect of a constantly shifting horizon. Better yet, shoot at a faster than normal 16 fps—say about 24 or 32 fps. Then, when you project the film the semislow-motion speed will slow down image movement. Thus, what appeared to you as a crazily bobbing horizon on a boat won't be annoying to viewers. You can conserve film by shooting less footage in some cases because you'll actually be shooting approximately $1\frac{1}{2}$ to 2 times as much film as you would at 16 fps.

As you cruise along interesting shores you may be tempted to pan. Here again, (Continued on page 113) FAMILY MOVIE CAMERA No. 11



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We chose a high angle shot to start our film because it was unusual enough to grasp audience attention immediately. If you have a variable focal length lens, zoom down to a close-up of the boys working at the dock. Then cut to Dad readying the motor.

A second cut shows a severe change of angle but continuity is maintained by the boat itself. Scene of man casting off with rope flying toward camera is visually interesting and signals the start of the boating adventure. Wideangle lens provides big foreground image in comparison to man in the background.

Boats offer great opportunities for filming constantly changing patterns with lots of movement like the wake of this outboard motor. You may want to include part of the receding dock. If you can get close enough to other boats without setting up a disturbing wake, you'll be able to shoot screen-filling images with normal or wide-angle lenses. Take meter reading from palm of your hand since water often gives inflated exposure reading when meter is pointed at it.



Once you find a beach to your liking, you'll find much that will help fill out your film story and add a change of pace from sea and sky. You can cut quickly from activity to activity to make a montage of events.

While confining your filming to medium shots and close-ups is sound practice with 8mm cameras, an occasional long shot, particularly one where there are large masses that can be used in an interesting way, instills a good change of pace. Varying image size is one way to keep your audience interested.

Once you establish the general pattern of an activity with a medium shot, like the one at the left, you can give your audience a closer look at the important details. Here, for example, a shot of the pitch fork actually turning over the mud to reveal a clam gives the sequence real meaning. Don't stint on film as long as what's happening is interesting. If you like what you're shooting, likely others will.

If you shoot scenes like the one of the youngsters swimming in fairly well protected anchorages, you'll get a steady image even at 16 fps. Be sure to expose for faces rather than the overall reading for the scene, particularly if the subject is in partial shadow.



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the MOVIE MAKER

by MYRON A. MATZKIN

Can't bridge two scenes, even though they belong together? Why not shoot continuity at home?



One of the most frustrating things that can happen to a film maker is to find that a carefully planned movie lacks continuity in key spots. Worse yet, he may discover this lack of smoothness in a

film made many miles from his home—a travel or vacation film, perhaps. If this has happened to you, don't get the idea that it's your private frustration, or that it only happens to amateurs. Even the pros discover missing shots after leaving location—with location several thousand miles away. But that doesn't mean there's nothing you can do. There are several ways to supply missing continuity. The best methods involve a bit of reshooting right at home.

Let's take one situation—a missing close-up. We talked about the technique of making close-ups in last month's column. To apply those techniques to shooting continuity footage you'll need a roll of seamless paper. The paper supplies a neutral background that will appear to match the background in the location film. Keep the close-up tight for best results. If sky showed in the location shots, use it to frame the continuity close-up. Place the subject against the sky, expose for the face, and change the camera angle a bit from the original scene for added interest and pace.

Shoot a bridge scene

If you moved around a lot on your vacation, your film is bound to be episodic—jumping from place to place. Occasionally, the jump may be too abrupt, leaving your audience stranded in Yellowstone National Park while your movie migrates to Grand Canyon—or even more radically, to a city. The answer here may be as easy as finding a road in your neighborhood (one that looks like a road anywhere) and shooting several feet as you drive along.

But you may want to go further and establish the exact identity of the new locale. Set up a fairly large map on a flat board. Rewind the film you exposed when you shot from the car. Double expose the map on the same footage. You can then cut to a close-up of the map showing the name of the new location—or better still—make a dolly or zoom lens shot to a close-up of the name.

If you don't have a zoom lens, use a roller skate, youngster's express wagon, or any other wheeled object that will let you move smoothly into the close-up from the long shot without interrupting the camera run. If you don't have a backwind crank on your camera you might film only the map. If it's big enough, start by shooting a close-up of the starting point and then pan slowly to the destination.

Using still photos

If you missed taking footage of an important landmark but did shoot a still photograph, you can film the still, using long shot, medium shot and close-up to supply movement. For details on shooting color slides, see "Movie Maker," MODERN, Feb., 1958.

If you don't have still photographs of your own, travel posters can provide colorful and often startling continuity effects. Spotted throughout your film they can serve as a device for maintaining continuity as you travel from country to country. Not only will they supply logical sub-titles, but often are near works of art, well worth including in your film on their own merit — provided they can be worked in smoothly.

If you think in terms of what you can do to solve continuity problems when you can't return to the actual scene, you'll develop many ideas of your own. In some cases, a few props may be enough to recreate the scene, when you can find a background similar to the rest of the footage. Shot in close-up, most beaches look alike. Other look-alikes are woods, hills and mountains, and shop windows.

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FLASHGUN GUIDE

(Continued from page 77)

camera with flash contact in accessory shoe; \$7.95

Heiland Div. of Minneapolis-Honeywell

Folding Mite: Test light; PC and ASA cord; fan reflector; \$11.95

Foto-Mite: Interchangeable cord; test light; extension outlet; \$9.95. Universal model with instant release bracket, \$11.95. Reflex model with reflex camera bracket, \$13.95

Tilt-A-Mite: Accepts bayonet or pinbase bulbs; tilting fan reflector; test light; cord has interchangeable tips; \$11.95

Karl Heitz

Alpa Flash: Fan reflector; test light; interchangeable cord; ext. outlet; \$17.95

Jen Products

Jen-Flash: Interchangeable cord; test light; extension outlet; \$16.95

Kalart

BC-400: Interchangeable cord; test light; extension outlet; \$13.75 to \$24.95

Kine Camera

Kinelite: Penlite batteries; fan reflector; \$1.95

Kinelite BC: Interchangeable cord; extension outlet; universal socket accepts baseless flashbulbs; fan reflector; \$4.95 with case; model for M2 flashbulbs, \$5.95

Rainbow PFG-2: Fan reflector; test light; \$5.95 with case

Rainbow PFG-3: Penlite batteries; fan reflector; test light; \$3.95

Rainbow PFG-4: Fan reflector; test light; \$5.45 with case

Rainbow PFG-6: Interchangeable cord; extension outlet; fan reflector; test light; \$6.95 with case

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Baldessa Flash: Fan reflector; \$4.95 Minox BC Flash: Solid or fan tilting reflector; connects directly to flash outlet of Minox camera; \$31.90

Konica

Koniflash III BC Flash Unit: Interchangeable cord; extension outlet; fan reflector; \$9.95 with case

E. Leitz

Chico Flash Unit: Interchangeable cord; test light; fan reflector; \$19.50 with case; model fitting Leicas IIF and IIIF with no cord needed, \$18

Leitz Ceyoo Flash Unit: Also accepts household base bulbs; interchangeable cord; ext. outlet; fan reflector; \$24

Nikon

BC-4 Flash Unit: Makes contact

through Nikon S2, S3 and SP accessory shoes; fan reflector; test light; \$18.75 with case

Nikon BC-3 Flash Unit: Interchangeable cord; test light; extension outlet; \$34.50 with case. Separate models for Nikon S and Nikon S2, S3 and SP

Polaroid

Flashgun Type 202: Fits Polaroid models 95, 95A, 95B, 700; \$13.95 Flashgun Type 281: Fits Polaroid models 80, 80A, 110A, 150, 800; \$13.95

Riken

Ricoh 125: Makes contact through accessory shoe; test light; \$5.95

Ricoh 605: Makes contact through accessory shoe of camera; interchangeable cord; test light; fan reflector; \$8.95 with case

Praco

Duo-Flector: Interchangeable cord; extension outlet; uses C batteries or BC with adapter; accepts household or bayonet-base bulbs; \$14.25

Duo-Master: Same features as Duo-Flector model but has brass instead of aluminum battery case; \$18.95

Praco M2: Interchangeable cord; accepts bayonet, pin-base bulbs; \$4.55

Praco M4: Interch. cord; \$5.95 (Continued on page 104)



Universally used by photo finishers, industrial labs and amateurs because of its compactness and versatility—and because it provides the simplest, quickest, most efficient way to process black and white or color film. Film quickly wound on open construction NIKOR film reel—then processed in nesting stainless steel tanks provided—without removing film from reel. Gives quick, top-quality results, with minimum handling. At leading dealers. Literature on request.

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BURLEIGH BROOKS, INC. 10 W. 46th St., New York 36, N. 1

FLASHGUN GUIDE

(Continued from page 103)

Praco M4-BC: Interchangeable cord; test light; \$8.95

Scopus Brockway

Brockway BC Flash Gun: PC and ASA cord; test light; fan reflector; extension outlet; accepts bayonet or pinbase bulbs: \$5.95

Canon Flash Unit Model III: No cord; attaches directly to Canon models II-F, II-S, IV and IV-S2; test light; has PC outlet and extension outlet; fan reflector; \$17.50 with case

Canon Flash Unit Model V: No cord, attaches directly to Canon models V and L; provision for use with other cameras and off-camera flash; test light; extension outlet; fan reflector; \$19.50 with case

Service Photo Suppliers

Avigo Crown: Interchangeable cord; test light; extension outlet; tilting fan reflector; \$15.95

Avigo De Luxe: Attached cord; test light; extension outlet; tilting fan reflector; accepts bayonet or pin-base bulbs; \$8.95; Penlite battery model, \$6.95

Avigo Imperial: Interchangeable cord; test light; extension outlet; tilting fan reflector; \$11.95

Avigo Standard: PC cord; test light; fan reflector; \$6.95; Penlite battery model, \$4.95

Sterling-Howard

Mini-Lux: Interchangeable cord; test light; extension outlet; fan reflector; \$7.49

Sol-Lite: Uses D cells; interchangeable cord; extension outlet; \$3.95

U.S. Photo Supply

Walz Flashmaster 1: Interchangeable cord; test light; fan refl.; \$12.95 Walz Flashmaster M5-25: Accepts bayonet or pin-base bulbs; test light; fan reflector; \$8.95

Walz Shoesynch Flashgun: Contact in shoe for Polaroids; test light; accessory shoe adapter for use with conventional cameras; \$8.95

Voss

Flexo Flash: PC and ASA cord; test light; extension outlet; accepts bayonet or pin-base bulbs; tilting fan reflector; \$7.95 with case

Improved Dyna-Lux Generator Flash Gun: One turn of knob generates current to fire lamp; \$10.95 with case

Praezisa Mirror BC Nylon Flashgun: \$3.95

Votar BC Flash: Attached PC and ASA cord; test light; fan reflector; \$5.95 with case

Weaver

Roto-Flash: 5-bulb magazine brings each lamp into firing position by rotation; \$9.95; extra lamp magazine, \$2.49; magazine and adapter for other makes of vertical socket flashguns, \$6.95

Wittnauer

Halo Flash: Interchangeable cord; test light; extension outlet; \$11.95

Carl Zeiss

Folding Ikoblitz: Test light; fan reflector; \$9.95

PICTURE HISTORY

(Continued from page 84)

chair was Napoleon Sarony's, in which consummate actors and actresses sat and played to his camera as to an immense audience. When the exact pose, the precise expression, was struck, the imperious five-foot-one-inch Napoleon, the same size as the Little Corporal and just as indomitable, hollered "Hold it," and for the 15 seconds to the 1 minute required, they all held it. Where other photographers forced the subject's head and body into vise-like clamps, asking them at the same time to "smile and look pleasant" (a cartoon of the period was captioned "You may resume your natural glum look in just a moment"), Sarony caught the actor in a pose best portraying a role without forced effects or awkward stiffness.

The warm, dramatic, and excitable personality of Sarony made a profound impression on his sitters. Those who did not respond or fall under his spell he refused to take at all or turned over to one of his assistants. Thomas Nast wrote, "He made everyone he photographed look like Sarony . . . the same feeling was in every picture . . . all his sitters seemed to catch the Sarony trick of expression and pose."

He worked hard to get a picture that satisfied him. He dressed up in a hussar's uniform. (His father had been an officer in the Black Hussars of the Austrian Army and had migrated after the battle of Waterloo to Quebec. There the future photographer had been born and named after Napoleon, whose death had taken place the same year, 1821.)

When Sarony photographed Jim Mace, the English pugilist, he sparred with the delighted champion until he had found a pose acceptable for the

Sarony always complained that Sarah Bernhardt never arrived early enough to take advantage of the best light. He

(Continued on page 106)



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PICTURE HISTORY

(Continued from page 104)

photographed her as the dying Camille -a representative pose, since, on her first American tour, in the eight plays she performed she was dead by the final curtain in six.

A few days after Oscar Wilde made his famous quip to the customs officer at New York's port of entry, "I have nothing to declare except my genius, he was standing in his get-up of knee breeches, although without the gilded lily he was wont to carry, in front of Sarony's camera.

The elder Sothern, Sarony photographed as Lord Dundreary in Our American Cousin, the role he was performing at Ford's Theater the night Lincoln was shot. The ever-remembered Joe Jefferson, who played Rip Van Winkle off and on from 1859 to 1904, Sarony photographed posed before and after his long nap.

The many-times-married Adah Isaacs Menken, who loved dogs and "fed them cubes of sugar soaked in brandy and champagne," according to Mark Twain who watched her do it, came to Sarony's in London in 1864 when Napoleon worked there for his prosperous brother, Oliver, who ran a successful gallery and photography supply house. In New York Sarony again photographed Adah Menken the year he opened his gallery

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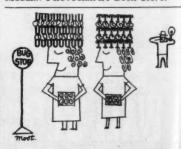
in 1866. She posed in the elaborate costume she wore in Mazeppa, daringly exposing her legs and limbs in tights. At the climax of the play she was bound "naked" to the back of a wild horse "which galloped up a succession of runways to the top of the theater while audiences roared their tribute."

Showman and picturesque figure, Sarony printed his flowing signature in red ink on every size photograph that left his gallery, and across the facade of the five-story structure he painted his name in huge script. He stocked the building with a fantastic assortment of curios and antiques including stuffed birds, tattered tapestries, sleighs, sleds, altars, Buddhas, armor, and sculpture, over which an Egyptian mummy stood guard at the head of the slow-ascending hydraulic elevator just big enough to accommodate him and one customer. He picked from this theatrical treasure house the props he needed.

In May 1896 Sarony sold at auction this tremendous hodge-podge curio collection. Six months later he was dead. Pall bearers were fellow members of the Tile Club, the reputable painters William M. Chase and Edward Moran, and the writer, F. Hopkinson Smith. Smith wrote a novel, The Fortunes of Oliver Horn, in which Sarony figured as the character Julius Bianchi; in it an artist-lithographer known to his fellow "skylarkers" as "the Pole" brings to the club a countess-obviously a takeoff inspired by Sarah Bernhardt.

Trained as an artist in Paris for six years before he turned to photography, Sarony continued to make lithographs and paint canvases all his life, puerile efforts resembling the commercial hack work of the period. Of his years spent in photography he complained, "all day long I must pose and arrange for these eternal photographs. They will have me. Nobody but me will do . . . (but) all my art in the photograph I value as nothing."-THE END

Mr. Pollack's book is available through MODERN PHOTOGRAPHY Book Store.





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MODERN TESTS

(Continued from page 97)

matic resetting footage indicator, built-in filters and improved loading system. Single lens model, \$79.50; turret model, with wideangle and tele converters, \$99.50. Manufacturer: Eastman Kodak Co., Rochester, N. Y.

The Brownie movie camera has indeed undergone a metamorphosis. The latest in this growing family of movie machines, the Brownie Scopesight, bears the usual strong family resemblance—but frankly, it's a lot more camera than its predecessors. It sounds better, feels a lot more substantial and has a surprising 12-ft. motor run, a solid four feet more than the first model had in 1951. But probably the most important addition to the camera is the Scopesight-a combination optical viewfinder and photoelectric cell that's coupled to a diaphragm with waterhouse system. After setting the exposure index of your film, you look through the finder, manipulate a wheel at the side of the camera until a needle is centered in the frame for the normal lens, and press the shutter release.

You can change settings in accordance with changing light conditions (while panning from sunlight to shadow, for example) by turning the wheel to keep the needle centered. Actually, keeping the needle anywhere in the frame, near bottom or top as well as at the center, will give acceptable results with Kodachrome, we found. You can use the camera with other films, too—with exposure indexes up to 40.

We took the camera along with us on several excursions as part of the testing plan, shooting whatever caught our eye. The motor is rather slow in getting up to speed—a steady 16 fps rate—and tends to slow down near the end of the run. However, poorly exposed film amounted to no more than a foot every time we exposed for the entire 12-ft. film run.

The self-setting, automatic footage counter proved as accurate as any we've seen—in the Brownie or even higher-priced class.

There are two filters built into the Scopesight: a skylight and a Type A filter for use with Type A film outdoors. The latter converts the camera to a one-film unit. You shoot indoors without a filter and flip the lever to the Type A position outdoors.—M.A.M.

REXER 8 HAS ELECTRIC DRIVE, BACKWIND

Specifications: Rexer 8 Sports Camera, Lens: Rexer 13mm f/1.9.

Drive: Electric. Finder: Zoom type. FPS: 16 and 24. Other features: Backwind, pistol grip, geared footage counter and motor lock. Price: \$139.95. Importer: Myers Distributing Co., 623 S. Gay St., Knoxville, Tenn.

In just a few years it may be that anyone caught struggling with the winding mechanism of a spring-driven 8mm camera will be considered rather quaint. The Rexer 8 is another 8mm unit driven by a built-in electric motor but with a choice of 16 or 24 fps filming speed. It has additional features that should make it interesting to any movie maker with diversified filming interests.

One of the more obvious characteristics of the camera is its three-lens, spider type turret. Lenses are spaced about 1 ½-in. apart, making it possible to mount up to a 3-in. tele with wide-angle and normal lenses without



optical or mechanical interference. The backwind on the right side of the camera is connected directly to the feed spindle and a chart on the camera body tells you how many turns of the crank are necessary to backwind a stipulated amount of film.

Two C type batteries provide power and are contained in a $5 \, \frac{1}{4}$ -in, handle under the camera, We ran seven rolls of film through the Rexer and at the end of testing the batteries appeared to be still going strong.

The handle/battery case provides a strong solid support for the camera and makes shooting off a tripod with long lenses feasible.

The zoomfinder shows the field of view for lenses from 5.5 to 75mm. However, the model we tested failed to provide an acceptably sharp image for focal lengths greater than 25mm. Since the camera was shipped up to MODERN from Tennessee, the unit could have been damaged in transit.

Future plans for the came a call for an exposure meter that will fasten to the front of the turret, extension cord for remote control, wireless remote (Continued on page 110)

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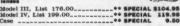


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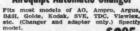
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MODERN TESTS

(Continued from page 108)

control, and adapters for Leica and C mount lenses.

We tested the camera with the new Rexer 3-in. f/1.0 lens and found it adequately sharp wide open and exceptionally sharp from f/4 to f/22. Test films were good, indicating an accurate fps rate.—M. A. M.

8MM MOVIE LIP SYNC WITH BAUER SYSTEM



Specifications: Bauer ES 8mm movie camera and Sound Coupler. Lens: Rodenstock 12 1/2 mm f/1.9 Mount: Permanently mounted on camera. Finder: 1 to 1 image with interchangeable elements for various focal length lenses. FPS: 8, 16, 24, 48 and single frame. Other Features: Sound Coupler used for taking and projecting; die-cast metal construction; 90° swing-out film gate; coupled photoelectric cell for all film indexes from 8 to 100; geared footage counter; film transport indicator in viewfinder. Price: Camera, \$199.95; three lens turret model with one lens, \$289.95; Sound Coupler, about \$125. Distributor: Intercontinental Marketing Corp., 45-17 Pearson St., Long Island City, N. Y.

The Bauer sound system, with the Bauer ES 8mm camera and Bauer Sound Coupler, is the first to offer lip synchronization with an 8mm camera

and tape recorder that can be purchased over the counter. While 8mm lip sync isn't new, units specifically designed for this type of movie making have been customized.

Here's how the Bauer works. A cable plugs into the top of the camera and into the Sound Coupler. The 1/4-in. tape from a tape recorder travels from the feed spindle to a drum on the coupler and then back to the recording head of the tape machine. Another cable, from the remote control outlet of the tape recorder, connects to the coupler. When you press the shutter release of the camera, the coupler turns on the tape recorder. A flashing light indicates when recorder and camera are in sync at 16 fps. A control on the coupler regulates the camera speed.

We tested this system in conjunction with a Grundig-Majestic tape recorder. Since no instruction manual for the camera was available at the time of our tests, achieving synchronization amounted to trial and error. However, we were able to sync sound and lip movement after considerable experi-

mentation.

No matter how often the camera is stopped and restarted, synchronization should remain constant. However, we noted a definite speed change in the spring-wound motor toward the end of each run-enough to throw us out of sync. To maintain sync, you should not use more than 75 percent of the camera motor's effective run. Incidentally, a certain amount of mechanical noise from the camera finds its way onto the sound track. The Bauer would require a blimp-a covering or case to prevent this noise from being recorded. The noise level, fortunately, is rather low.

The synchronizer, tape recorder and Bauer 8mm projector are used to project the film, with the coupler hooked

into the projector.-M.A.M.

WHAT'S AHEAD

(Continued from page 28)

cent surface, the otherwise uniform illuminance is quenched.

7. The pattern of light emitted by the fluorescent surface passes through the negative in the opposite direction to that of the infrared to expose the print paper.

In the Kel-O-Wat printer the fluorescent surface is excited by the ultraviolet, and simultaneously is quenched by the infrared. The negative, being between the infrared source and the fluorescent surface, performs a dual function. It not only acts to control the amount of light reaching the paper emulsion, but it also controls the intensity of the infrared reaching the fluorescent coating. In effect, the print exposure is made, then, by a luminous positive image of the negative. A little thought will make it evident that this results in an apparent compression of the negative density scale. That is, automatic dodging.

Follow-up on lens hoods

In my November, 1958 column I reviewed the subject of lens hoods and asked if readers thought them to be worthwhile or not. Never in my ten or so years of writing for MODERN PHO-TOGRAPHY have I received so many letters and practical examples to prove a point. Thank you for being so cooperative. But please be tolerant if you do not hear from me personally for a few months. I am a "professor," you know, and have a secretary for only a few hours a week. But you shall all hear from me eventually. (Incidentally, lens hoods are definitely of value, and I now have plenty of evidence to prove it.) -THE END

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NETWERN SHOWERS, CAUGHT IN THE RAIN, HIS
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FAIRY STORIES

SOUP TO PRINT

(Continued from page 76)

If the emergency is dire enough, time can be cut to as little as 5 to 8 minutes.

This super-speed process is not recommended for the photographer looking for salon quality—and indeed is only used by the *Journal* when deadlines demand it. Normal start-to-finish processing time is about 20 minutes. After first prints are made, negatives are usually fixed, washed and dried a second time before they are sent off to the files.

Standard

To maintain the efficiency pre-requisite for any newspaper photo department working against deadlines, certain standardized techniques are required.

Thin-base 35mm films—such as Kodak Plus-X and Panatomic-X—are used almost exclusively, since they develop, fix, wash and dry rapidly, decreasing the total time necessary to produce a finished print. (Such low light level, action subjects as night baseball require

IN NEXT MONTH'S MODERN

Small electronic flash units: when and how to use them.

much faster films—such as Ansco Super Hypan—however.) Most 35mm film is developed in UFG and fixed in NH5, a fast-working hypo.

Nikor stainless steel developing tanks, familiar around amateur darkrooms too, are used for all 35mm films. The Journal maintains three air-conditioned negative processing darkrooms—each approximately 6 x 5 x 10 ft. A stainless steel sink takes up most of the space and into it flows a continuous stream of water, kept at exactly 68° F. All chemical solution bottles are kept submerged in the water, maintaining their temperature at the same 68° level. Therefore, developing, fixing and washing times can be kept constant.

Journal photographers have worked out a developer replenishment system which they consider sure-fire. For every gallon of UFG developer, one gallon of replenisher is mixed. After each usage, developer is poured back into the bottle, together with enough replenisher to bring the level up to "full." When the gallon of replenisher is gone, the gallon of replenished developer is discarded and a fresh solution mixed.

Special

The photographic staff has evolved other techniques which are uniquely its own—such as fan-drying wet negatives (page 76), and the even more precise art of dashing out for coffee (from the lunchroom downstairs) and back in time to remove developed film from the Nikor stainless steel tank.

Standardized techniques, clock-work timing—and practice—enable the *Journal* photographer to operate on his split-second schedule. Modern went to Milwaukee and watched it work.

This is the first of a number of personal visits which MODERN will make to various darkrooms throughout the country from time to time.—E. M.

FAMILY CAMERA

(Continued from page 100)

it's wise to think of the bouncing effect of the water. Instead, shoot the panorama in sections, overlapping each scene with the next so that the cuts flow smoothly into each other.

There are many kinds of images in and around a boat that provide good continuity devices. For example, you can project the idea of traveling from one spot to another by cutting to a close-up of the wake around the bow or stern of the boat. A flag whipping in the breeze provides a bright patch of color. Footage of passing ships injects a change of pace from the immediate surroundings of your own boat. Try getting close enough to shoot without a tele lens. Your normal or wide-angle won't register as much camera motion and at the same time give you a greater depth of field than possible with a tele at the same distance and f-number. It means that you won't have to worry about critical focusing if you shoot at f/5.6 or smaller apertures.

Build the story around activities of

the day—whether you stop to fish or swim, or visit a beach for shell hunting or clamming. After a while, you'll need a change of pace from looking at water and sky and side activities make interesting footage.

And take care of your equipment. A few clear plastic bags will protect cameras, meters and lenses from salt spray. If you use a bag large enough, you can even keep the camera in it while you shoot—and still manipulate the controls. Just make a hole for the lens to prevent blurred images. A skylight filter over the lens protects it from salt spray and also helps cut the haze often present over any body of water. No filter compensation is required for haze filters.

You needn't use elaborate equipment for good family boating movies. Just don't hesitate to film an idea because someone says it won't work. If you think it will, it's worth trying.—M. A. M.





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EXCITING NEW FILM FROM INDIA

If you should notice that a strange and exotic title is scheduled to arrive at your local movie house, make sure that it isn't Pather Panchali before you avoid it. If this is the title, then by all means do not let it be shown simply for others to see. As a serious photographer and as an interested member of movie audiences, you will find a visual freshness and vitality in this Indian film which, according to its distributor, Edward Harrison, will be shown throughout the country in movie theaters and on college campuses.

In its enthusiasm for Pather Panchali, Modern has asked eminent film critic Archer Winsten, of the New York Post, to comment on the film's visual elements and its making.-Ed.

There is, solidly imbedded in the structure of the great Indian film, Pather Panchali, an element that has not been sufficiently singled out for attention. This is the photography, simple and unobtrusive, yet extraordinarily evocative. A nonprofessional can see this film and be deeply moved by its tragic story of the poverty-stricken family without being at all aware of the art-concealing art of the shots, the heavily tapestried backgrounds of woods and undergrowth and distant running figures coming gradually to the contrast of the facial close-up.

Consider the two extremes: the great aunt's incredibly aged face, skull promontories of nose and chin, erosions sharp as a chisel cut, the finer etchings and crosshatched shadows of wrinkle; and the little boy's face of brown, satin childhood, untouched yet, and climaxing in the large eyes of inquiry. She is mankind's last steps before the grave. He is the beginning, the blank, receptive tablet ready to respond to everything.

Between the extremes are found the other members of the family, the young girl listening to the confidences of her friend who is about to be married, the mother despairing as her absent husband sends no word, or her daughter is accused of stealing, the father hopefully planning a move that will enable them to live better. In each instance director Satyajit Ray, having set up the situation in the mind of audience, clinches its thought and emotion with the extraordinary close-up.

The choice of performers was, of course, perfect. The handling of story and its musical accompaniment became rarities of unadorned artistry, each wholly appropriate to the other. What manner of people could do this kind of work the first time they stood behind a movie camera?

They were amateurs, literally. They loved the movies deeply, were willing to study them as amateurs do, not handicapped by routinized procedures of the professionals. They had been inspired by Jean Renoir when he came to India to make The River. There were errors made by Renoir, they thought, things he didn't know about India and things he failed to learn. They knew their India. What they got from him was the way he always tries, like a painter, to see more clearly.

Ray talked with Renoir and was encouraged to try to make a picture on his own. A friend of Ray's, Subrata Mitra, a young photographer who knew how to handle a Leica, was then in St. Xavier's in Calcutta. He left college in order to watch them making The River. He and Ray together tried to learn as much as they could of the technique. They knew only that they wanted to show on film what they had seen, and what they felt.

In this way they came with three other young friends to the making of Pather Panchali. Having raised a few thousand dollars, they tried to make a 4000 ft. roughcut that would demonstrate their worthiness in seeking more support. It was a gamble like no other in the history of the cinema, five amateurs setting out to make a masterpiece. And they succeeded after struggles comparable to the cliff-hanging suspense melodrama.

They made a picture which has the quality of love and life so strongly expressed in its climactic close-ups that each time you see it, it says more to you. I have never seen a film that equaled it in its power of growth, despite the initial fine effect, during the second and third viewings. This is photography raised to a height of revelation, something for long contemplation.—THE END

MODERN COLOR

(Continued from page 48)

5 x 7, four 4 x 5, four 31/2 x 5, or eight 2½ x 3½ prints on one 8 x 10 sheet. With it you can test print important areas of your subject using a variety of filters and exposures, or of course use it to make more than one print at a time from the same negative or transparency. Contact the Saunders Co., P. O. Box 111, Rochester 1, N. Y.

Next on our list is the matter of darkroom illumination. (For greatest safety use no safelight whatsoever.) For Kodak materials, a Wratten No. 10 safelight filter, which is very deep brown in color, may be used to illuminate dials or provide indirect general light to help you find trays, etc. For Anscochrome Printon, a Wratten Series 3 Safelight may be used to illuminate dials only. Don't under any circumstance let the light from this strike the sensitive material.

Best solution to the above problem is to provide yourself with timers having luminous dials.

Last but not least, provide yourself with an accurate timer which turns the enlarger light on and off. This preferably should be one which doesn't have to be reset each time and has large easy-to-read dials.-THE END

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ROMAN VISHNIAC

(Continued from page 86)

contracts. In addition, he refuses to compromise with his photographs. He will not weasel pictures to reach a specification. Friends still remember with some amusement the outcome of an assignment given Vishniac by an insecticide firm. They hired him to shoot a film showing the effect of their product on grasshoppers. The insecticide was unquestionably effective. Vishniac's movie showed the poor creatures in their death throes with such pathetic force that it made many new friends for grasshoppers. The film could not be used.

Working expenses run quite high when Vishniac is doing an assignment. He often agrees to a price and then simply disregards the size of the sum available for expenses. This summer while working on four films for Encyclopedia Britannica Films at the Oceanographic Institute, he found interesting creatures under his microscope which he felt would not fit into the client's scripts. He shot them, charged himself for the film and put the reels in storage for future use. In all, he shot 30,000 feet of 16mm Kodachrome, all on some form of marine life. He always seeks to make the best picture, the best movie. Too often he puts his own money into it if necessary. Clients not only get their money's worth. They get his, too.

Vishniac is a slave driver. The slave he drives is himself. He hasn't seen a non-scientific movie in years, hasn't gone to the theater, owns no TV set. He seldom sleeps past six, works constantly, either making pictures, observing through the microscope or walking through the woods at his summer home near Carmel. He insists that the most interesting things take place in the wee hours of the morning and he makes sure he is there to see them happen. At Woods Hole Vishniac would often send his wife Edith to bed early (1 A.M.) and continue working until 4 A.M. When he reappeared at the lab at 6 A.M., the guards thought he had forgotten something and could not believe he was beginning the next day's work.

Unlike many of today's photographers, Vishniac is neither complainer nor sufferer. He can go for long periods without food when he is working, but he enjoys eating, he enjoys company, he enjoys planting in his country rock garden. He cannot sit for long without thinking of some chore that needs doing and forthwith doing it. He is ordinarily gentle and mild-tempered but can fly into a rage if poachers attempt to hunt deer on his posted property. He has all the patience in the world to wait for an insect passing through a stage of metamorphosis, but he has no patience with faulty equipment. When he wants something in the way of equipment, he wants it instantly. If he thinks it will fit his needs, he will buy it first and find out if it works later.

On the subject of photography he is quite vocal. Every picture, he explains, must contain three essentials if it is to endure. It must have subject, composition, and thirdly (and perhaps most important) it must have some force to awake an emotion in the viewer. He has unkind things to say about many picture books and stories that show people enjoying experiences which the viewer is supposed to share. "It is all wrong," he protests. "Too often the person in the picture is different than the viewerolder, or shorter, or fatter. It is almost impossible for the average viewer to relate to him. Instead of the photographer should be the eyes of the final viewer. The photographer should open the door and the viewer can then see the world with his own eyes." His views on photographers who photograph dead insects or animals can scarcely be printed here.

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The owner of all this driving force was born near St. Petersburg, Russia, in 1897. He wanted for little in his early life, perhaps in compensation for what he was to be put through later. Story has it that he photographed a cockroach's leg at the age of 7 and he learned film processing at the age of 10 in a most unusual manner. He took some pictures and then attempted to develop the plates which he had bought at a pharmacy. The result: blank, fogged negatives. There were no directions written in Russian, unfortunately, and so it was some time and many fogged negatives later that, quite by accident, he developed a few plates in a dark corner of the room and learned that you must either turn off the lights or use a red bulb.

Also, internal combustion

By the time World War I was well under way, Vishniac had a doctorate in zoology from Schanoyavsky University in Moscow and was an assistant professor of biology there. In 1920, there being then a great shortage of Russian doctors, Vishniac studied for an M.D. and got it. Later the same year he left Russia. The next decade saw him in Latvia and then in Berlin where he garnered a Ph.D. in Oriental art, married and had two children. He found that his scientific work wouldn't support them and his father. who was living with him. He worked as an insurance salesman, sold typewriters, and became involved with an automobile repair agency (every now and then he still astounds friends with his knowledge of internal combustion engines).

In his spare time he taught his children to love living things, did research in biology and endocrinology, worked with polarized light for photomicroscopy. Eventually he discovered that he had an ability for portraiture which he turned to good financial use.

During 1938 he felt compelled to photograph the ghettos of Middle and Eastern Europe before they were destroyed (pictures, page 78 and 79). When Vishniac finally came to the U.S. he exhibited these photographs in camera club salons. One can only imagine the shock the judges must have experienced when confronted with such brutal reality. For years they had had to contend with nothing more disturbing than kindly pictures of old grandmothers or nice young men all painted up to look like pirates. Later some of the pictures were reproduced in a book whose sale was only 300 copies. A motion picture Vishniac made of ghetto life at the same time he made the still photographs was unfortunately destroyed.

Vishniac, Hitchcock style

After his children grew up, went through college and began their own lives, the Vishniacs parted. Vishniac returned to Germany, now as an American citizen, to bring back his aged father. He also returned with the present Mrs. Vishniac, whom he had known in Berlin years before. His search for her amid the ruins of Berlin and their eventual escape through the Russian-occupied Eastern Zone of Germany plus his trouble with a certain American consul who thought Vishniac was actually a Russian spy would make a lively Alfred Hitchcock script.

Edith Vishniac was more than worth the trouble. A handsome, warm-hearted charming woman with brilliant, greystreaked brown hair, she remembers where every Vishniac picture or negative is, has a knack for making balking pieces of photographic equipment work, shovels the proper pills and food into her steam engine of a husband, goes off on endless walking trips, her pockets bulging with empty specimen bottles to be filled at the various ponds and streams along the way. Roman Vishniac is her trial, but also her pride and her joy.

Vishniac, quite happy at home, is able to concentrate his energies on his work. There are problems to be solved. How can you photograph a tiny fish swiming underwater without getting a reflection from the electronic flash? Who will build a zoom lens for microscopic work? ("It can be done, all right," declared one noted optical authority, "but it would cost a small fortune, and who would pay for it?") And how can Vishniac get the proper backing and distribution for one of his dearest aims, to make a movie of Rachel Carson's book The Edge of the Sea?

And Vishniac has his research. He is convinced that cancer study could benefit by more thorough use of the photographic medium. "All talk of great strides being made in cancer cure during the last twenty years is nonsense. We must begin again, try new approaches."

He has a radical new theory of evolution which he has propounded in various lectures including one given recently before the American Institute of Biological Sciences. Older colleagues were shocked but young scientists pricked up their ears. Vishniac feels that there is not a single evolutionary tree, but that there are many-that attempts to squeeze organisms into present classifications, animal and plant, are erroneous, that some plants may have originally been animals which learned to photosynthesize (manufacture their food with the help of sunlight) when food became scarce and then took root, there being no more reason to move about. It will take time and research and photographs to prove him right or wrong.

Vishniac bears crosses in silence. From other scientists one learns of jealousies and envy of reputation which have even caused him to be black-balled from certain organizations. Vishniac is a proud and stubborn man. Some colleagues charge that Vishniac thinks himself superior to them. Others say they could do as well as Vishniac if they had the equipment, or claim that his photos are all faked and that he is a fraud. Last year a movie about Vishniac received national distribution. Some resented that, too.

All work, no money

Incidentally, Vishniac is besieged by organizations seeking to do stories about him or to make motion pictures on his work. Of course, it's for the publicity, he is told. He usually consents although much of his time is taken up and there is little remuneration for him.

His inability to cope completely with English bothers Vishniac. He lectures quite often and is distressed over his incapacity to express his thoughts as accurately in English as he can in Russian. Recently he has been reading up on English grammar.

The scope and drive of a Vishniac is perhaps at the very limits of our conception of photography. With rockets soon to reach the moon, with hardly a spot on earth still untouched by man, it is somewhat of a thrill and a relief to learn that here, at our feet in a drop of water or a pinch of earth, are new and immensely beautiful worlds into which a man is looking intently, recording discoveries with a camera.—THE END

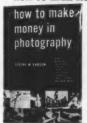


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GHOSTS

(Continued from page 71)

picture of two persons on the plate instead of one-the thought and conviction flashed upon his mind, this is the picture of a spirit! and in it he recognized the likeness of his deceased cousin, which is said to be correct by all who knew her.'

His claim was immediately investigated by a number of prominent Boston photographers but no apparent deception could be detected.

The demand for Mumler's services increased to the point that he found it necessary to leave the employ of Bigelow Bros. & Kennard, leading jewelers of Boston, where he held the position of principal engraver. In the midst of the rising controversy, Mumler was receiving the sum of five dollars a dozen for a series of card-sized spirit photographs. News of his ability to photograph the materialized countenance of the deceased spread through this country and Europe. In England, sealed packets of three photographs each were sold for three shillings six pence.

The reaction was mixed; was this the "truth," "reliable" and "believable"? Or were these only "blurs," "stains" or "blotches"? Mumler in the meantime had moved his studio to New York City and was getting the handsome fee of ten dollars a photograph. Then in 1869 proceedings were taken against him at the insistence of the mayor of the city. Mumler was charged specifically with taking money under false pretenses.

The trial lasted for ten days, causing excited and extraordinary interest. Judge Dowling listened to the personal statements of many respected citizens. "Mr. Livermore, a New York banker, swore to the likeness of his wife." Mr. Jeremia Gurney, 707 Broadway, testified: "I have been a photographer twenty-eight years. I witnessed Mumler's process. I went to scrutinize everything, and could find nothing which savored of fraud or trickery." Mumler himself insisted upon the supernatural character of his photographs. Asserting that "the disembodied spirit takes its place by the side of the sitter of flesh and blood, or hovers in dim angelic outline overhead, as represented by this mysterious art." P. T. Barnum, on the other hand, stated he had purchased some of the spirit photographs to hang in his museum as examples of "humbug" and that another so-called spirit photographer had taken a picture of himself which produced not only his likeness but the shadowy outline of Abraham Lincoln. Mr. Barnum voiced the opinion that he believed in neither photographer.

Examples of methods by which Mumler could have produced the effects were exhibited, but no evidence was introduced to prove that he used any of them.



Winsome spirit cuddles close to subject in Mumler photo taken c. 1865.

After due consideration, Judge Dowling had to dismiss the case because the evidence did not establish the matter legally so as to justify conviction, although he said he was "morally convinced that trickery and fraud were used." It was not until a few years later that some explanation was given of Mumler's procedure: "He had a society man in his employ who extracted the photographs of deceased relatives from the drawing-room albums and conveyed them to the photographer who, after securing copies, returned them to his agent." The photographs were returned and then the persons involved were directed to the Mumler studio. A double exposure and manipulation while processing the plates produced the final

It was only a question of a few years before the gelatinobromide in England became sensitive to spirit photography. On March 11, 1872, Mr. Samuel Guppy, of Moreland Villas, Highbury Hill Park, N. London, accompanied his wife to the studio of Mr. Hudson, Palmer's-terrace, Holloway-road, to have her portrait taken. Mrs. Guppy was recognized as one of the chief "mediums" in England. Her husband was an amateur photographer and had made frequent attempts to obtain spirit photographs, but he felt the results not conclusive enough. Then. in Hudson's studio, after the photographs of his wife were taken, he suggested an experiment. "I directed Mr. Hudson how to arrange the drapery forming the background, and requested my wife to stand behind it while I was being taken. While so sitting, and Mr. Hudson preparing the plate, a wreath

(Continued on page 122)

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GHOSTS

(Continued from page 118)

of artificial flowers was placed on my head suddenly. There were some artificial flowers about, and they had been put on a table in one picture taken of my wife, but there was no wreath. Mr. Hudson was in his darkroom, and my wife behind the drapery at the time. No other person was present. The picture taken showed a white figure standing behind me, like a person covered with a sheet. Other spirit photographs followed, the alleged condition necessary was that of the presence of a medium."

Spirits continued to frolic about more and more in the gelatinobromide. "So gigantic has the affair become of late," wrote one French reporter, "that the police have stepped in to put a stop to the speculations which rested on the credulity of purchasers . . . the Prefecture of the Police now has a studio of its own, and thus it is enabled to appreciate and understand very readily any photographic matters that come under its attention." Police attention was focused in this instance upon No. 5 Boulevard Montmartre, the studio of Monsieur Buguet.

"Buguet guarded himself by saying he could never guarantee a likeness, because much depended on the strength of faith of the applicant, and, moreover, spirits were capricious, and sometimes when you called for one, another would come." In many instances the force of imagination was so strong that the applicants, upon seeing the spirit photographs, "burst into tears, fell upon their knees, kissed the photographs, and were profuse in expressions of gratitude to the professor," lavishing gifts upon him. Although there was a set fee of twenty francs a photograph, as much as 4000 francs was known to have been gladly paid. The events that followed read like the plot of a comic farce.

A Commissary of Police and a member of the new photographic staff decided to visit the studio of Monsieur Buguet disguised as customers. The artist posed one of them, focused, and then under the pretense of invoking a spirit, told both men to leave and wait in the reception room. After ten minutes the photographer called them back and asked the gentleman who had posed to take his place once more. Instead of doing so, "the Commissary of Police produced his badge of office and, introducing himself and his friend under their real titles, called upon the medium to acknowledge his trickery." The three retired to the darkroom to process the plate. It revealed a faint image, which was to be superimposed on the portrait of the sitter. Further investigation disclosed that in an adjoining room a large collection of draped dolls was conveniently hidden. A number of dolls were fashioned to resemble prominent deceased persons, whose "spirit" images had appeared in previous photographs from this same studio.

At this point, the plot thickens. The ingenious photographer was brought before the Paris tribunal to answer the charge of swindling the public, but Buguet was not the only one involved in the deception. M. Levmarie, the editor of Review Spirite, and an American named Firman were allied with him. It was Firman who seems to have taught Buguet the art of spirit photography, and Leymarie published facsimiles of the photographs taken. Buguet and Leymarie received up to one year's imprisonment and Firman to six months. In 1876, the following year, Buguet avowed that two-thirds of the spirit photographs represented true spirits. Leymarie also pleaded innocence but said he had been deceived. Firman said nothing.



A facsimile of one of Buguet's spirit photographs taken in 1875, from La Nature magazine, published in 1894.

Double exposure and substitution were two of the earliest methods used to produce likenesses from the spirit world, but as individual knowledge of photography increased, the art was practiced with greater caution and imperceptible chemical reactions were used to perpetrate the fraud.

Sir Arthur Conan Doyle, creator of Sherlock Holmes, became a supporter of William Hope, in England, and his group known as the Crewe Circle. Sir Arthur did not believe that trickery was involved, but Hope's use of fraudulent devices was eventually confirmed.

There have been fewer assertions of late, possibly because investigations and test conditions have become more thorough. Whatever the case may have been, there seems to be no case now for spirit photography.—THE END

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